





THIS IS THE DROUGHE LOOKING FOR

Meet BB-8™ - The app-enabled Droid whose movements and personality are as authentic as they are advanced. BB-8 responds when you speak, expresses different traits, and rolls under your control or on its own. The magic this Droid creates is unlike anything you've ever experienced. It's more than a toy - it's your companion.









© & ™ Lucasfilm Ltd.

SUMMARY



'HOTEL TRANSYLVANIA 2' BITES OFF SEPTEMBER RECORD 06

GOT THE NEW iPHONE? HERE'S HOW TO USE LIVE PHOTOS FEATURE 22

OCULUS TAKES AIM AT MAINSTREAM WITH INEXPENSIVE GEAR, VIDEO 38

LUCASFILM SHOWS OFF VR PROTOTYPE FOR 'STAR WARS' FILMMAKING 60

MODI TOUTS SOCIAL MEDIA, TECH DEVELOPMENT IN FACEBOOK VISIT 104

SCIENCE: LIFE ON MARS? NASA SAYS PLANET APPEARS TO HAVE FLOWING WATER 112

COLLEGES HELP STUDENT STARTUPS NAVIGATE THE LEGAL LANDSCAPE 122

WHY PHONES BREAK: SCREENS GET STRONGER, YET WE DEMAND MORE 140

Columns

TOP 10 APPS	80
UNES REVIEW	84

TOP 10 SONGS 130

TOP 10 ALBUMS 132

TOP 10 MUSIC VIDEOS 134

TOP 10 TV SHOWS 136

TOP 10 BOOKS 138

'HOTEL TRANSYLVANIA 2' BITES OFF SEPTEMBER RECORD

September has a new box office star in "Hotel Transylvania 2." The PG-rated animated pic earned a robust \$47.5 million in its debut weekend, making it the top September opener of all time, according to Rentrak estimates Sunday.

The previous record holder was "Hotel Transylvania" which opened to \$42.5 million in 2012.

"It really is something the whole family can agree to see. There are laughs for adults, kids, and teenagers as well," said Rory Bruer, president of worldwide distribution for Sony.

According to the studio, an estimated 59 percent of audiences were female and 60 percent were under the age of 25.









Paul Dergarabedian, a Senior Media Analyst for box office tracker Rentrak, noted that the film capitalized on early excitement for Halloween. It's also serving an audience eager for more family friendly animated content.

"This year hasn't been oversaturated with family animated films, it seems like virtually all have done well," he said.

The film, which cost around \$80 million to make, features the voices of Adam Sandler, Mel Brooks, Selena Gomez and Kevin James and is the only animated feature on the market until "Peanuts" opens in November.

"The Intern," a PG-13 rated workplace comedy starring Anne Hathaway and Robert De Niro, took second with a solid \$18.2 million.

Audiences for the Nancy Meyers written and directed film were 62 percent women and 88 percent over the age of 25. Significantly, 55 percent were over 50-years-old - an audience that doesn't typically rush out to see films on opening weekend.

"Nancy Meyers is her own brand and I think that automatically accesses an audience who looks at it and thinks `this is a movie I want to see," said Jeff Goldstein, an executive vice president at Warner Bros., of the veteran filmmaker known for films like "It's Complicated."

"Here we have a real hit," he said.

"Maze Runner: The Scorch Trials" took third place in its second weekend in theaters with \$14 million - a 54 percent drop from its opening. The film has brought in \$51.7 million to date.

"Everest," meanwhile, landed in fourth place with only \$13.1 million after expanding nationwide.





The fact-based adventure film opened only on IMAX and premium large format 3D screens last weekend.

"It's very difficult to know where a film is going to land when there's no good comp for it. Based on the releasing pattern we had for the movie, we're kind of blazing a new trail. You can call it an experiment if you will," said Nick Carpou, who heads Universal's domestic distribution. "When you add the two weekends together and the mid-weeks in between, sitting here at \$23 million feels really good."

Dergarabedian said that perhaps the competition over the same audience is the reason for "Everest's" soft weekend.

"It's really crowded out there," Dergarabedian said. Both "Black Mass," in fifth place with \$11.5 million, and "Everest" have been pulling in predominantly male audiences.

The well-reviewed border drama "Sicario" is also dividing audience attentions. It cracked the top 10 with \$1.8 million from only 59 theaters.

Hope isn't lost for "Everest," though.

Internationally, it has earned \$73.7 million to date. Also, with a solid A CinemaScore, word of mouth should be strong in the coming weeks, despite the direct competition of next week's "The Walk," another vertiginous, event film that will take over IMAX screens.

Estimated ticket sales for Friday through Sunday at U.S. and Canadian theaters, according to Rentrak. Where available, the latest international numbers for Friday through Sunday are also included. Final domestic figures will be released Monday.





- 1 "Hotel Transylvania 2," \$47.5 million (\$29.2 million international).
- 2 "The Intern," \$18.2 million (\$11.8 million international).
- 3 "Maze Runner: The Scorch Trials," \$14 million (\$28.4 million international).
- 4 "Everest," \$13.1 million (\$33.8 million international).
- 5. "Black Mass" \$11.5 million.









Estimated ticket sales for Friday through Sunday at international theaters (excluding the U.S. and Canada), according to Rentrak:

1 "Lost In Hong Kong," \$100 million.

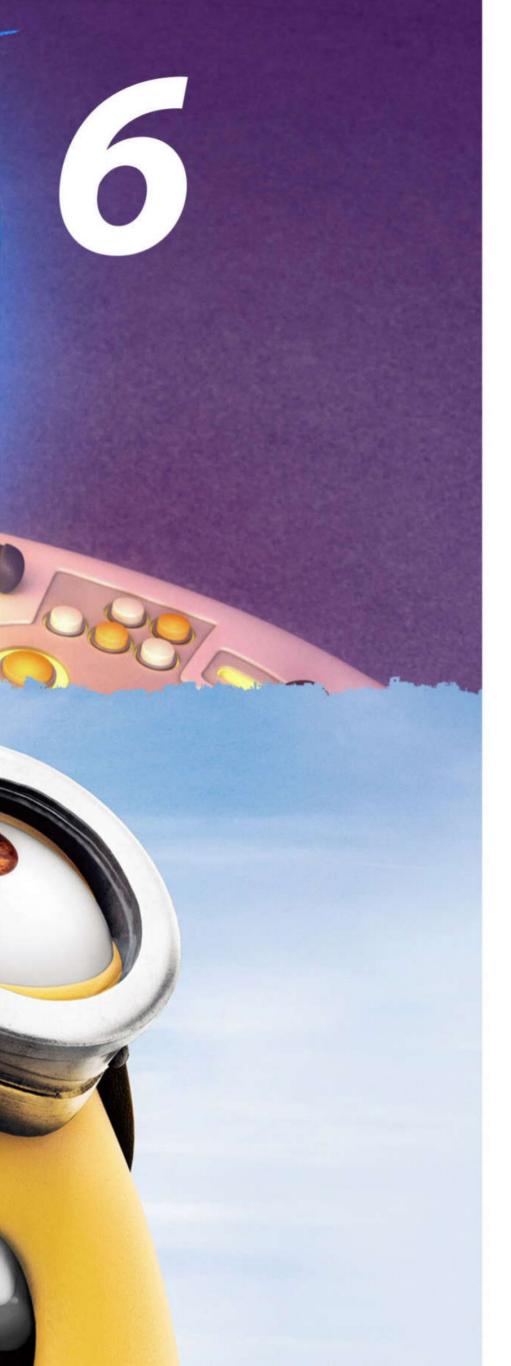
2 "Everest," \$33.8 million.

3 "Hotel Transylvania 2," \$29.2 million.

4 "Maze Runner: The Scorch Trials," \$28.4 million.

5. "The Intern," \$11.8 million.





6. "Inside Out," \$8 million.

7 "The Throne," \$7.9 million.

8 "The Third Way of Love," and "Fack ju Gohte 2," \$7.5 million.

9. "Minions," \$6.8 million.

10. "Pixels," \$6 million.





is Now available on

Apple iPhone/iPad/Android/Windows8 and Web



Download And Read it on Magzter



From your Apple iPad please go to App Store and search for Magzter



From your Android Tablet please go to Google Play and search for Magzter



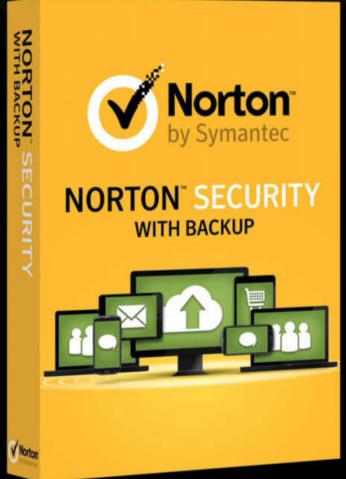
From your Windows8 divice please go to Windows Store and search for Magzter











NORTON" SECURITY WITH BACKUP

NOW WITH NORTON™ FAMILY PREMIER

Powerful Norton protection, plus secure PC backup, for your family of PCs, Macs, smartphones and tablets

- Real-time protection against existing and emerging threats like viruses and malware
- Tools to help your kids safely explore the Internet and away from unsafe Web content
- Includes 25 GB of online storage for PCs



Save \$20

BUY NOW



GOT THE NEW iPHONE? HERE'S HOW TO USE LIVE PHOTOS FEATURE



If you're getting one of the new iPhones, you'll be able to turn still images into video.

The iPhone 6s and 6s Plus, which started shipping Friday in the U.S. and other markets, automatically take three-second videos to accompany your regular shots, including selfies.

Imagine snapping a shot of your kid blowing out birthday candles - and getting video showing the flame going out as everyone sings "Happy Birthday." Yes, sound is included. You can also enhance shots of your pets and landscapes, such as a waterfall.

You need one of the 6s models to capture these "Live Photos," but older phones are fine for viewing.

This feature takes practice, so check out these tips:





TAKING THE SHOT

When you open the camera app, the iPhone continually records video in the background, though it's immediately discarded if you do nothing. When you snap a shot, the phone saves a second and a half of video leading to that shot and continues recording until you get three seconds in all.

Wait a few seconds before snapping your shot so that the video won't show you moving the phone into position. Likewise, resist dropping your camera right after taking the shot. The phone will detect that movement with an upcoming software update, so it can stop the video automatically. For now, wait for a yellow "LIVE" box on the screen to disappear before moving.

Ask your subjects to hold their pose longer. If they start moving or talking, the video will show that. The video will show your flash firing if you use it, so natural lighting is better.

The still shot is the key part of Live Photos, and video merely enhances that. Pay attention to perfecting that still shot in terms of focus, lighting and composition. You don't need to wait for the video recording to finish before snapping another shot. Just keep snapping, as you'd normally do, and the phone will create overlapping three-second videos automatically.





VIEWING AND SHARING

To view a Live Photo on your phone, tap and hold the image in the Photos app. On the Apple Watch, you can view it in its Photos app or as part of a custom watch face with that image. On Mac computers, go to the Photos app and move your cursor over the "LIVE" box on the lower left corner. Your devices need the latest system software - iOS 9 on iPhones and iPads, watchOS 2 on Apple Watch and El Capitan on the Mac. The Mac update is coming soon.

Share Live Photos with family and friends through the Messages app - as long as they have an Apple device with the latest system. Otherwise, they'll just get the still image. Make sure the message is sent as an iMessage, which will appear blue. If it's green, it is a standard text message and won't have video. You can also share these through the phone's iCloud Photo Sharing and AirDrop features, but not as email. Apple is letting other services such as Facebook create tools for sharing and viewing as well.

Because Live Photos include audio, don't share with someone you've just gossiped about.

PHOTO MANAGEMENT

The video part gets turned off when you edit photos. You can get it back, but you then lose your changes. Make a copy to edit by sending the Live Photo to yourself using iMessage. Just send it to your Apple ID email address rather than your phone number.

You can export Live Photos to Mac and Windows computers and find video files that work with most video programs. Quality is lower than usual to save storage. Plus, Apple hides these files under normal use, so this is mostly for advanced users.

Each Live Photo takes up about twice the storage of a regular photo. You can't delete just the video part, but you can disable video recording by tapping a yellow circle on the screen. Apple's iCloud Photo Library service might free up some storage on your phone, but you might be better off buying a phone with more storage to begin with.









The name of Apple's new Mac operating system says a lot about what to expect.

"El Capitan" won't offer dramatic changes, but rather refinements and enhancements to the current Mac system, called Yosemite. In real life, El Capitan is a rock formation in Yosemite National Park. It's as though the new Mac system isn't big enough to leave Yosemite.

Nonetheless, it's an upgrade worth having after it's out Wednesday, especially as it's free. Though you're not getting a lot of new functionality, El Capitan is packed with goodies that will shave off seconds here and there. Those seconds will add up.

Just back up your system before upgrading, and make sure any apps you use frequently will work with the new system. Sometimes, it takes app makers weeks or months to catch up, especially for non-Apple apps.

Once you get El Capitan, here are six features worth checking out:

PINNING WEBSITES

A pin is like a bookmark on Apple's Safari browser, except the website you're pinning is always open and refreshing in the backgrovund. If you visit another website and come back, pins remember where you left off - as long as you don't close the browser.

You might say this sounds like browser tabs. A key difference is when you click on an external link and leave a pinned site, the browser opens a new tab, so you don't lose your place on the pinned site. With tabs, the new site sometimes replaces the site you were on.





MUTING AUDIO

As websites get aggressive at delivering video ads and content, audio might play automatically. This gets annoying if you're watching video in another window. Safari now has a speaker icon to instantly mute all audio playing in the browser, without affecting audio elsewhere. With the computer's mute button, it's all or nothing.

If the video you're watching is playing in the same browser, the audio for that will mute, too. It works better when playing video in a standalone app, such as iTunes. Or you can install a separate browser, such as Google's Chrome, and play your Netflix or Hulu video there.

SPLIT SCREENS AND SPACES

The Mac has long let you run multiple apps in separate windows, but you've been limited to one app when it's in full-screen mode. This changes with El Capitan's Split View, a feature Microsoft has had since Window 8's release in 2012. Although you can come close to split screens by resizing two windows and placing them side by side, you now just need to press and hold the green button on the top left of an app's window.

The introduction of split screens also uncovers a little-known feature called Spaces. If your desktop feels cluttered, you can spread your apps out in groups, or Spaces. One Space might be for your productivity apps, such as spreadsheets. Another might be for goofing off. If you're on a laptop, it's easy to switch by swiping three fingers on the touchpad left or right. That's perfect for when your boss suddenly walks by.





BETTER NOTES

The Notes app has traditionally been little more than a word-processing app. Now, it's possible to drag in photos, add map locations and create checklists. It's also easier to sift through Web links and attachments you've added. The Notes app on iPhones and iPads got a comparable update, and your notes sync across Apple devices. You can also access them on Windows computers through icloud.com. Android users are out of luck.

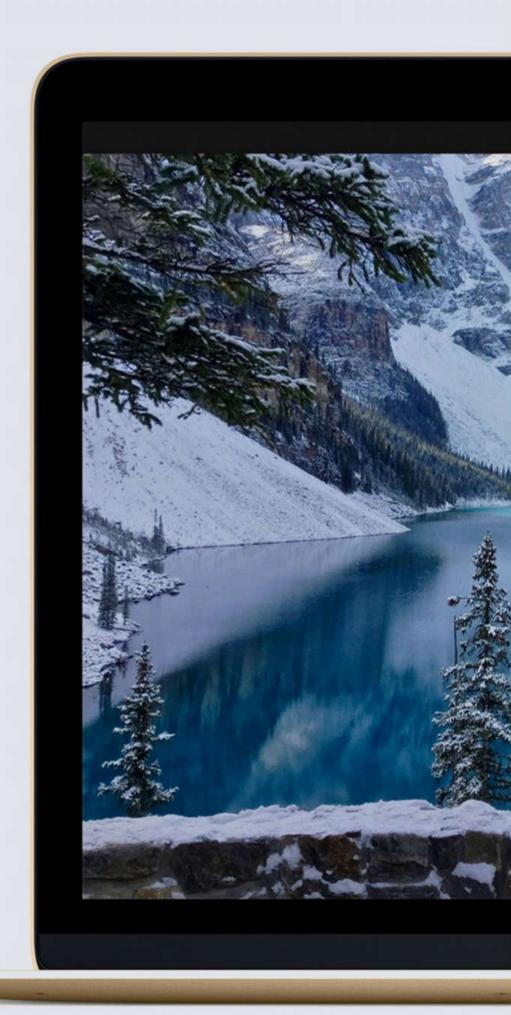
SMARTER SEARCH

You can search for old documents using natural language, such as "find me spreadsheets from March 2013." The search tool also retrieves more types of information, including weather and stock quotes.

SHAKY CURSOR

No doubt you've had times you've needed to select text or move a window, but you have no idea where the cursor went. Now, just move the mouse back and forth rapidly, or swipe your finger back and forth on the touchpad if it's a laptop. The cursor turns into a giant arrow for better visibility.

It might remind you of those giant foam fingers at parades and sports arenas. Freaky, but useful.





OCULUS TAKES AIM AT MAINSTREAM WITH INEXPENSIVE GEAR, VIDEO

Virtual reality is taking a few steps closer to the mainstream with Samsung unveiling a headset that brings the technology to its latest smartphones at half the price of its previous model, Facebook launching support for 360-degree video, and online video services like Netflix and Hulu jumping into the format.

The announcements at a developers conference in Los Angeles for virtual reality technology company Oculus represent attempts to push the platform beyond a video-gamer-focused niche.

Facebook Inc. CEO Mark Zuckerberg, who cut a deal to buy Oculus for \$2 billion last year, told some 1,500 conference attendees Thursday that virtual reality is "the next logical step" in online sharing after text, photos and video.

"In just a few years, VR has gone from being this science fiction dream to an awesome reality," he said. "And now we all here have a chance to change the way we play, communicate and collaborate."









Zuckerberg showed off a promo for the upcoming "Star Wars" movie showing a speeding vehicle zooming over the desert landscape of fictional planet Jakku. Users can look around in any direction using their mouse as the video is playing.

Samsung said its new virtual reality headset will be 22 percent lighter and cost \$99, half the price of its previous model. The Gear VR, which requires users to insert the latest version of a Samsung smartphone into the headset, will ship in November.

Netflix content is available to be viewed in Oculus or Samsung headsets starting Thursday, while Hulu said it would also bring its app to the Oculus platform where users can stream 2-D content as well as an original virtual reality short film called "The Big One," from YouTube star Freddie Wong's RocketJump production company. A Hulu launch date wasn't announced.

Meanwhile, Oculus said it would begin a certification program so consumers can look for a sticker that will identify which computers support its Oculus Rift headset, which is due to come out early next year. Asus, Dell and Alienware will have certified models that cost less than \$1,000.

Online: Facebook's 360 video announcement

YOUR BRAND HAS BEEN IN SUCH COOD COMPANY



APPLEMAGAZINE.COM

It's all about Apple

The right magazine for the right audience

AOL Computer Checkup

Clean it up. Speed it up. Lock it up.

Free your computer from the junk dirtying up its hard drive with AOL Computer Checkup, the one-click fix that helps clean and speed up your slow PC.

- Remove traces of internet browsing history and encrypt sensitive files
- Get rid of the useless junk left behind when installing and uninstalling programs
- Back up and recover accidentally deleted files
- Analyze system settings and identify ways to improve security

Sign up now, and then sit back, relax and let our 24 powerful PC tools clean, speed up and optimize your PC automatically.

TRY IT FREE FOR 30 DAYS

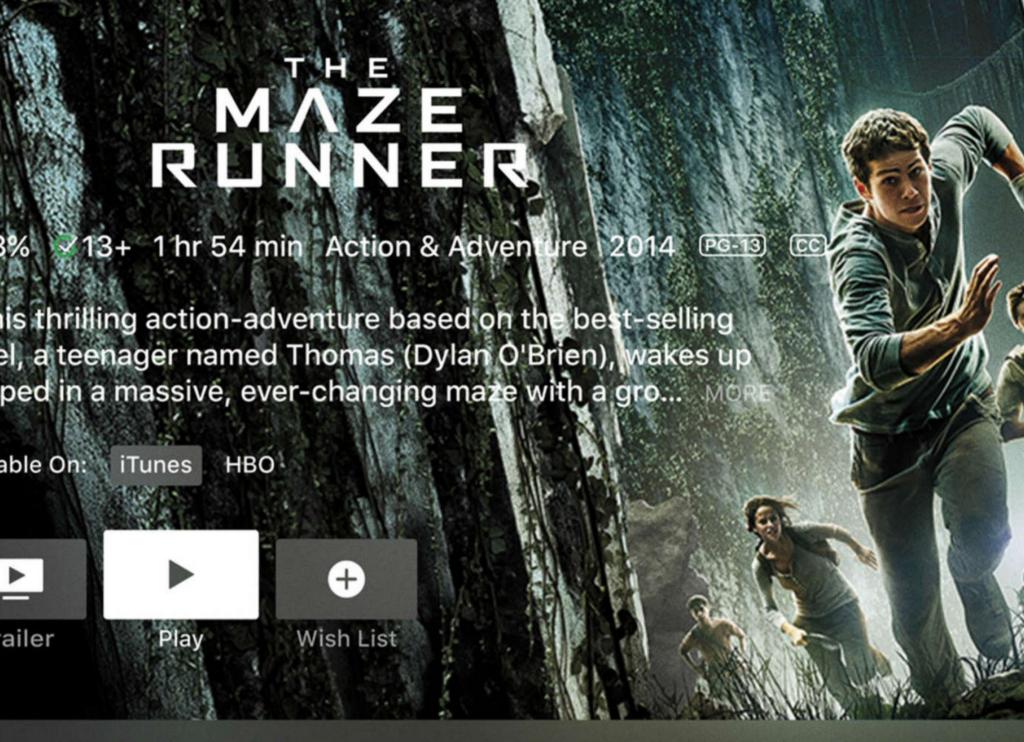
Annual subscription for just \$39.95 per year begins upon registration.

To avoid being charged the recurring subscription fee,
simply cancel before the free trial period ends.

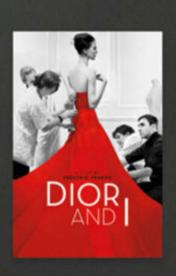
I want my Apple TV! A new generation is coming

New Apple TV will include Siri Remote and lots of apps

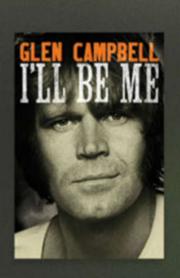




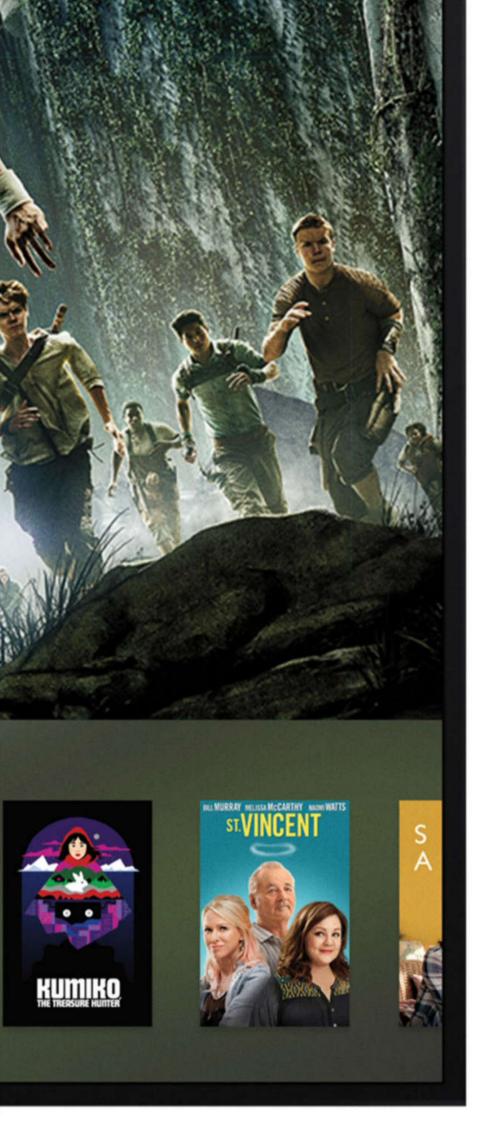














"TV plays a huge role in our lives, and it occupies an important place in our homes, where we gather and enjoy it together. There's more great content being created today for TV than ever before. It really is the golden age of television. As important as TV is, the TV experience itself hasn't changed that much in decades. We are going to do something about that."

That was Apple CEO Tim Cook's preamble at his company's major keynote on September 9, before he removed the veil from the long-awaited fourth generation of the Apple TV. Though not many people would argue with his observations, it's also fair to say that few companies have so far even shown much ambition for pushing the envelope for how TV content is consumed. Apple certainly looks like a company with the expertise, resources and history to finally break, rather than just fracture, the mold.

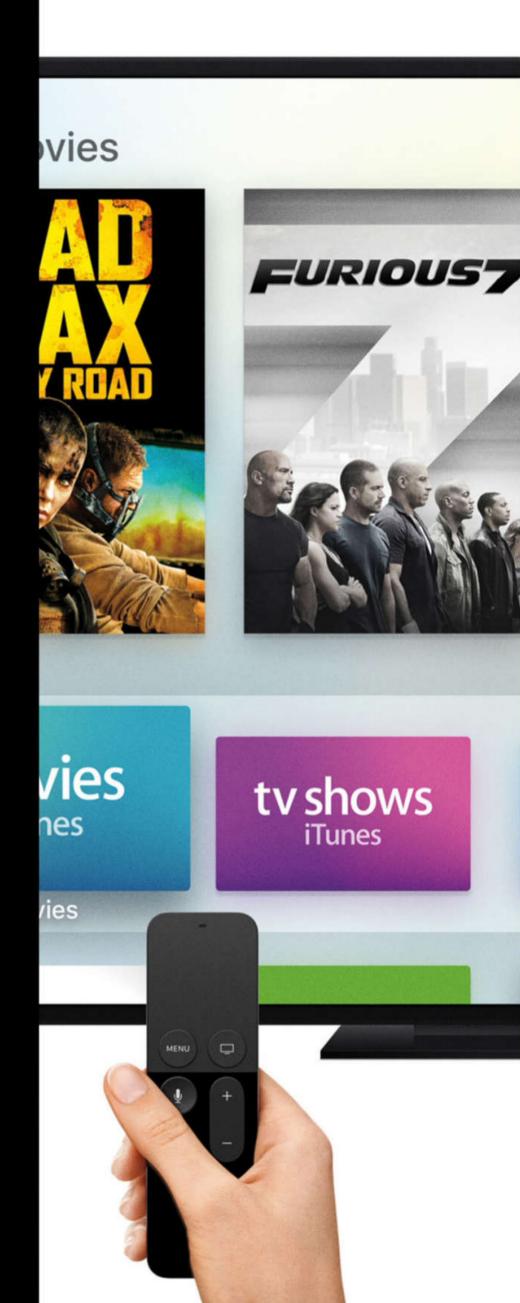


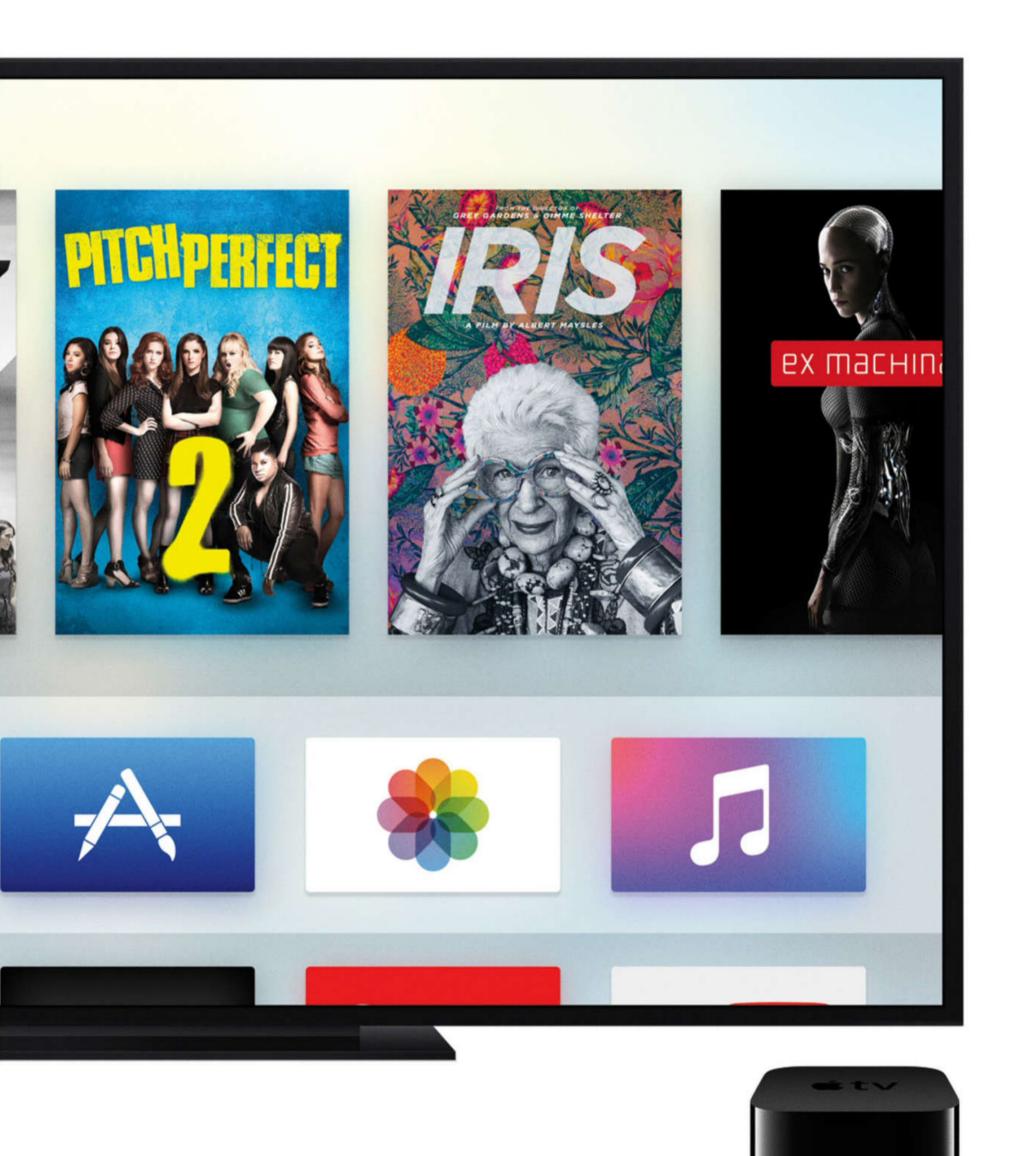
A TV REVOLUTION THAT IS ALREADY UNDERWAY

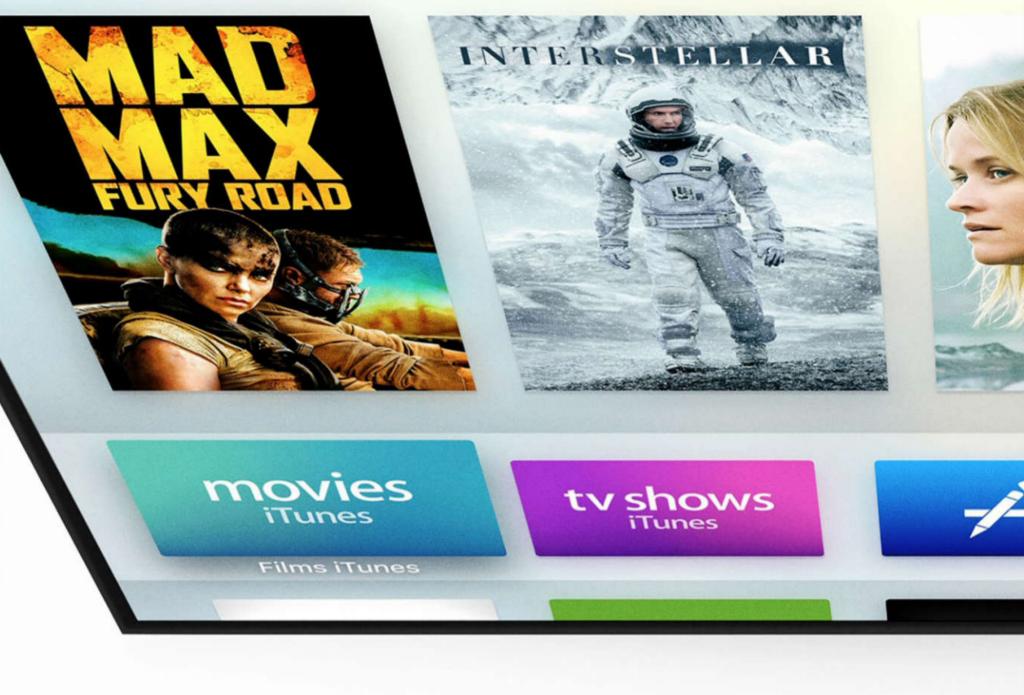
As Cook acknowledged, in recent years, far more innovation has emerged in TV content than the actual TV platform through which that content is consumed. A significant move forward in this area surely calls for a more technical examination of the way television operates - and Apple seems to have indicated an intention to work to its strengths by declaring that "the future of TV is apps".

To a large extent, TV is already about apps. As Cook also noted, more and more time is being spent watching TV content through apps on computers and mobile devices, rather than through that little black box in the corner of almost every living room. We could mention - as well as more familiar favorite apps like Netflix - the Pluto TV: TV for the Internet apps, through which over a hundred TV channels especially designed for online viewing can be watched through an iPhone, iPad or iPod Touch.

In fact, that black box could nearly be considered old-fashioned, a relic, where it not for Apple's plan to take the app template already familiar on iPhone and iPad and apply it to the traditional TV. The theory is that taking the huge variety of content available through apps like Pluto, including drama, comedy, music, news and sports, and making it available through the traditional TV set could rescue that device from becoming a mere fossil of the media world. It seems a logical strategy, so how exactly will the new Apple TV work?

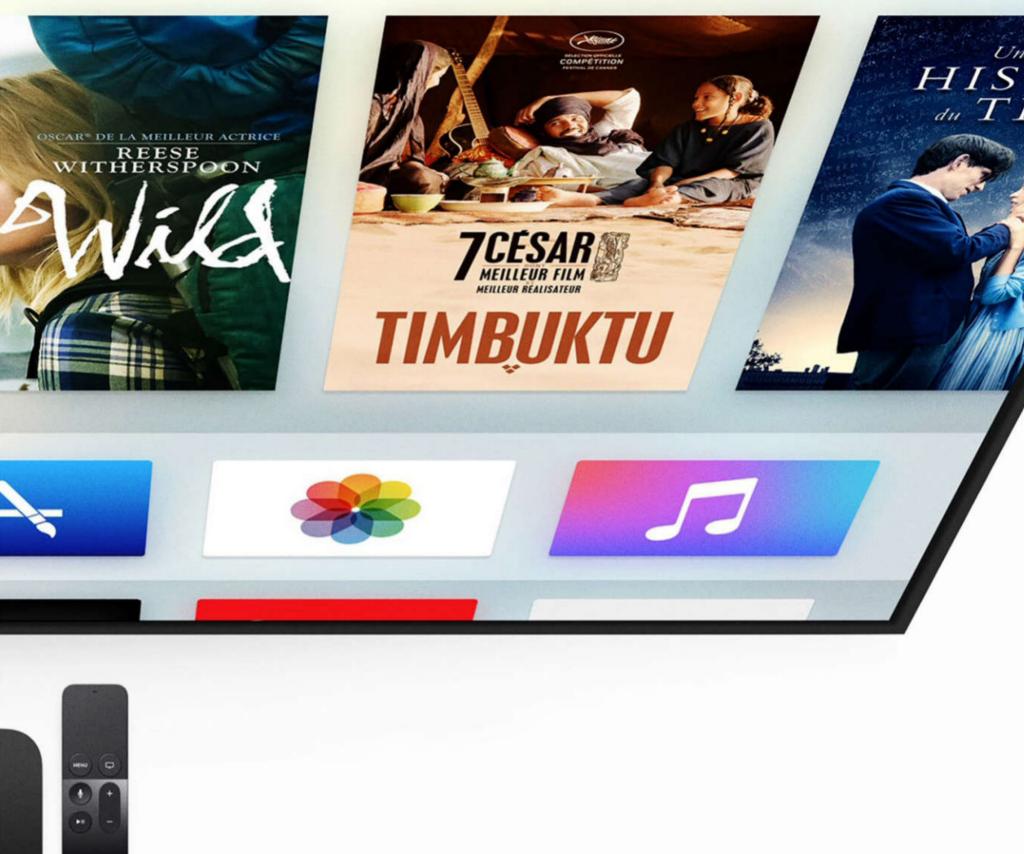








Like the iPhone and iPad, Apple TV will now have a fully-fledged operating system. In this instance, it will be called tvOS - though, as Craig Federighi, Apple's Senior Vice President of Software Engineering, confirmed to The Verge, it is 95% based on iOS. The new operating system will also be accompanied by its own App Store, which 11 million registered developers have already been given the opportunity and tools to populate with apps.



The new Apple TV will even come with many familiar built-in Apple apps, including Photos and Apple Music, that have been especially redesigned for the big screen. Many games from iOS will not only also be present, but actually enhanced. The new, accompanying remote's touchpad, accelerometer, gyroscope and other features are there for developers to utilize, opening up a myriad of new gaming possibilities... but more about them later.





New & Noteworthy







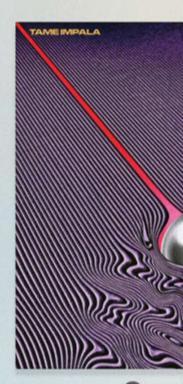
Beat Sports

Transistor

Blood Lianne La Havas

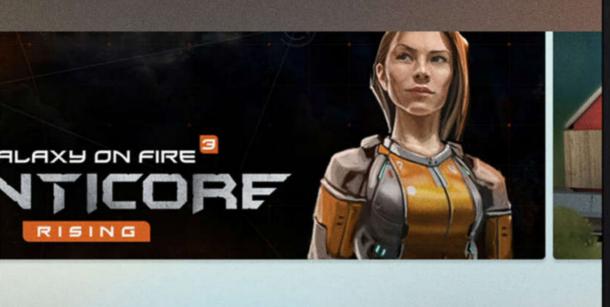


Badlands Halsey



Curi Tame

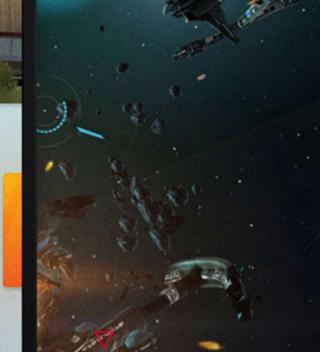












660



ents Impala



Beneath the Skin...
Of Monsters and Men



One of a Kind Aer







SIRI'S HERE TO HELP - AGAIN!

Another ever-present from iOS that has been brought over to tvOS is Siri. In fact, so fundamental is that virtual personal assistant to the new Apple TV that the remote will be called the Siri Remote. As demonstrated in a fun and informative way by Apple senior design producer Jen Folse at the keynote, the huge content library, which will draw from iTunes, HBO, Netflix and more, can be searched much more easily through even incredibly obscure vocal requests.

During the demonstration, Siri helped Folse to source first James Bond movies and then narrow down the broad choice to the ones starring Sean Connery. However, a better glimpse into how Siri alone could hugely transform the television experience emerged when Folse said to Siri: "Show that Modern Family episode with Edward Norton." Cue the immediate appearance of the Modern Family page, with that specific episode in question already selected. Siri can even skip a few seconds behind and turn on captions if you ask what someone on screen had just said - no wonder the audience applauded on seeing that in Folse's demo...

THE EMERGENCE OF A NEW CONSOLE GAMING TITAN?

The Apple TV has been so significantly bolstered that it could even serve as a games console. A console to rival the PlayStation 4 and Xbox One? It might be too early to say, but there are already some pretty big name games heading to Apple TV. As revealed at the keynote, Guitar Hero, Shadowmatic and Crossy Road, the latter with a new, Apple TV-exclusive multiplayer mode, are on the way. And, thanks to the new set-top box's 64-bit A8 processor, they should all be able to run as smoothly as their mobile counterparts.

The Siri Remote's glass touch surface means that gaming on the Apple TV could feel surprisingly similar to iOS gaming. So, iOS gaming on a physically much larger scale? Actually, that would be underselling it. The remote's built-in accelerometer and gyroscope also allows for something rather akin to the motion-sensitive controller of Nintendo's hugely popular Wii console. iPhones and iPads can also be used as controllers for multiplayer gaming, which could help spare financial expenses of buying extra controllers for when friends come round to the house and fancy some social gaming.

Though the Siri Remote alone enables many gaming possibilities that were rarely possible or practical with iOS, the Apple TV's compatibility with third party controllers, including the recently-announced SteelSeries Nimbus controller, could take things even further. To what extent gaming experiences could differ from those of more established gaming consoles remains to be seen - in fact, maybe that's exactly why we should be so excited...







HOW APPLE TV COULD DEVELOP FROM HERE

The new Apple TV, it is known, will be available in 32GB and 64GB models, priced respectively at \$149 and \$199, in late October. However, what is especially exciting about all of the new features is that we are less certain than ever about how the Apple TV and the experience it offers could develop over the next few years. So, what future developments can we predict with at least some confidence?

One is that Apple will be bringing a webbased streaming service to the Apple TV in 2016. It has been suggested that the service will offer about 25 channels for a monthly charge of \$30 to \$40, and that Apple has negotiated with several content providers, including ABC, CBS, Fox and Disney, in preparation. There has even been, from Variety, a report of Apple considering producing original TV and movie content.

Looking even further ahead, Apple could move beyond just a set-top box by manufacturing an entire television set. If this does go ahead, it would be a realization of a supposed vision of Steve Jobs, who was said to be aiming for a revolution in TV. Jobs reportedly told his biographer, Walter Isaacson: "I'd like to create an integrated television set that is completely easy to use. It would be seamlessly synced with all of your devices and with iCloud. It will have the simplest user interface you could imagine. I finally cracked it." Now that's suddenly seeming very familiar...



by Benjamin Kerry & Gavin Lenaghan



LUCASFILM SHOWS OFF VR PROTOTYPE FOR 'STAR WARS' FILMMAKING

Before a planet in a galaxy far, far away is completely constructed inside a computer or entirely built somewhere in the real world, "Star Wars" filmmakers are now able to visit it in virtual reality before production commences.

Rob Bredow, a Lucasfilm visual effects supervisor and head of the ILM Experience Lab, showed off a prototype program Wednesday at an industry gathering of VR creators. The program, called V-Scout, allows filmmakers to virtually experience mocked-up sets on an iPad and Oculus Rift VR headset.

Bredow demonstrated the prototype at the Oculus Connect conference with a visit to the desert planet Jakku that will be featured in director J.J. Abrams' "Star Wars: The Force Awakens."









"The idea here is that you can mock up your shots very intuitively if you're the director, the director of photography or anybody in the filmmaking process before you've gone out and planned anything in any detail," Bredow said. "In this case, we're just looking at sketch models, low-quality models that the art department mocked up early in the production to work on blocking and scale."

During the demo, finger motions on an iPad were used to sweep around a downed Star Destroyer in order to frame a shot. At one point, the Oculus Rift headset was used to simulate standing on top of the massive space vessel to illustrate the ship's height above the sandy wasteland below.

Bredow said Gareth Edwards, director of the spin-off film "Star Wars: Rogue One," has been using the technology before constructing sets.

In addition to V-Scout, Bredow also showcased a quirky computer-generated, 360-degree demo featuring iconic "Star Wars" characters C-3PO and R2-D2.

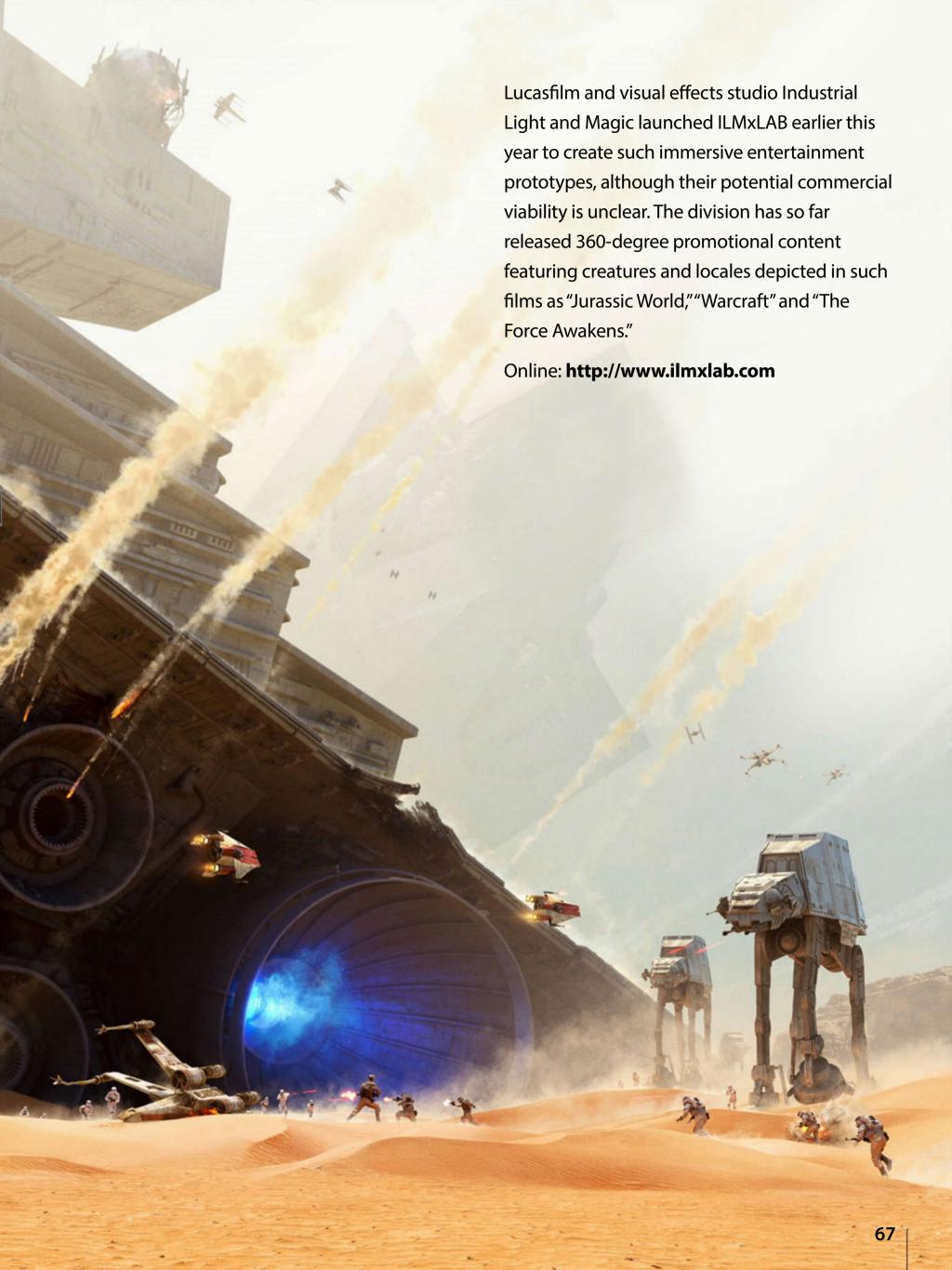
In the footage, the rebel droids were hiding from Stormtroopers on the planet Tatooine. The footage was first shown as a linear short film before Bredow employed touch controls on an iPad to navigate past the plot's main action, revealing bounty hunter Boba Fett lurking in the background and an AT-AT combat vehicle attacking a rebel ship off in the distance.

"We've taken pieces that might have ended up on the cutting room floor and are exploring them in this new medium," Bredow said. "It feels natural. You don't have to teach someone to use this - and it's all running on an iPad."

















After a friend recommended that he join a secret Google project six years ago, Brian Torcellini suddenly found himself on the road to an occupational oxymoron. He became a driver in a driverless car.

Torcellini, 31, leads a crew of test, or "safety," drivers who are legally required to ride in Google's fleet of 48 robot cars. They only take control in emergencies. Otherwise, they make observations that help the Internet company's engineers program the cars to navigate the roads without human assistance.

"A lot of people go to work and sit in a cubicle," Torcellini says. "Our cube just happens to move around the roads. And if we are successful, we are going to put ourselves out of a job."

The driverless cars already have logged more than 2 million miles in six years of sometimes tedious testing on private tracks, highways and city streets located mostly near Google's Mountain View, California, headquarters.

The vehicles have traveled more than half that distance in automated mode, with one test driver in place to take control of the car if the technology fails or a potentially dangerous situation arises. Meanwhile, another driver sits in the front passenger seat typing notes about problems that need to be fixed and traffic scenarios that need to be studied.

"I don't want to compare myself to an astronaut, but it kind of feels like that sometimes," says Google test driver Ryan Espinosa while riding in an automated Lexus that recently took an Associated Press reporter on a 20-minute ride around town without requiring any human intervention.





If the technology advances as Google envisions, the only people sitting in driverless cars by 2020 will be passengers looking for an easier way to get around.

Even fewer test drivers will be working because the driverless cars will be completely autonomous, eliminating the need for the vehicles to be equipped with steering wheels or brake pedals. Everything will be controlled through a combination of sensors, lasers, software and intricate maps - a vision that could very well leave many of Google's test drivers looking for a new line of work.

The job requires a sense of adventure, something Torcellini acquired when he began to surf in high school. His other passions include spear fishing and scuba diving, which he likens to the sensation he gets when he climbs into one of Google's self-driving cars and pushes the button that activates the vehicle's robotic controls.

"When you go scuba diving and take a moment to really think about it, you realize you are doing something that isn't supposed to be humanly possible: you are breathing underwater,"

Torcellini says. "It's the same kind of feeling you get in one of these cars. It's not supposed to be humanly possible."

While the engineers who are programming the robot cars have technical backgrounds, most of the test drivers don't.

Torcellini worked in a drug store warehouse while getting his degree in political science at San Diego State University. He dreamed of pursuing a career writing about surfing. He ended up at Google in 2009 after a friend who

worked for the company suggested he interview for an opening on a then-secret project.

Espinosa, 27, was working in a bicycle shop before he was hired as a test driver two-and-half years ago. Stephanie Villegas, 28, was a swim instructor, knife sharpener and bond trader before becoming a test driver. Other test drivers are military veterans and former photographers. They all share at least one thing in common: spotless driving records.

Before they are entrusted with the cars, Google's test drivers must complete three-week training courses. The drivers are taught to take control of the robot car whenever there is any moment of doubt or danger.

Google employs "dozens" of test drivers but won't reveal the precise number. It's likely around 100 because California law requires two test drivers per vehicle, and Google's fleet currently consists of 25 pod-like cars and 23 Lexuses.

A few of those self-driving cars Google also recently began cruising around Austin, Texas, so a few of the test drivers are based there.

The crew consists of a mix of full-time employees and contractors, some of whom are eventually hired by the company.

The drivers who start off as contractors begin at \$20 per hour with "many opportunities" for overtime when they log more than eight hours in a day or 40 hours in a week, according to Google's recent help-wanted listings posted on Glassdoor.com. The drivers who become employees receive company stock options in addition to their salaries, though Google won't disclose how much they are paid.









autonomous mode. There have been no major

injuries reported so far.

The self-driving technology hasn't been to blame for any of the accidents, according to Google, though it says one collision was caused by an employee who was steering a robot car while running a personal errand. In all but three of the accidents, Google's self-driving cars have been rear-ended, a trend that the company believes has to do with the large number of motorists who are texting, talking on the phone or otherwise doing something besides paying attention to the roads and their surroundings.





TOP Free Apps



#01 – iTunes U

By Apple

Category: Education

Requires iOS 8.3 or later. Compatible with iPhone, iPad, and iPod touch.



#02 - Facebook Messenger

By Facebook, Inc.

Category: Social Networking

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#03 – Facebook

By Facebook, Inc.

Category: Social Networking

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#04 – Instagram

By Instagram, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#05 - Snapchat

By Snapchat, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#06 – YouTube

By Google, Inc.

Categor*i*: Photo 8, V

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#07 – Smashy Road: Wanted

By Remco Kortenoever

Category: Games

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#08 – Netflix

By Netflix, Inc.

Category: Entertainment

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#09 – Pandora Radio

By Pandora Media, Inc.

Category: Music

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.

This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.



#10 – Layout from Instagram

By Instagram, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.





#01 – OS X Yosemite



#02 – App for Instagram



#03 – Kindle
By AMZN Mobile LLC
Category: Reference



#04 – ooVoo Video Call, Text and Voice



#05 – App for Youtube



#06 – Xcode



#07 – App for Facebook



#08 – OneDrive



#09 – Evernote



#10 – Fotor Photo Editor

By Chengdu Everimaging Science and Technology Co., Ltd Category: Photography





Mac OS X





#01 – PewDiePie: Legend of the Brofist

By Outerminds Inc. Category: Games / Price: \$4.99

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#02 - Minecraft - Pocket Edition

By Mojang

Category: Games / Price: \$6.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#03 – Purify Blocker

By Chris Aljoudi

Category: Productivity / Price: \$0.99

Requires iOS 9.0 or later. Compatible with iPhone 5s, iPhone 6, iPhone 6 Plus, iPhone 6s, iPhone 6s Plus, iPad Air, iPad mini 2, iPad Air 2, iPad mini 3, iPad mini 4, iPad Pro and iPod touch (6th generation).



#04 - Plague Inc.

By Ndemic Creations

Category: Games / Price: \$0.99

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#05 – Sky Guide: View Stars Night or Day

By Fifth Star Labs LLC

Category: Reference / Price: \$2.9

Requires iOS 8.0 or later. Compatible with iPhone, iPad, and iPod touch.



#06 – New Emoji - Extra Emoji Stickers

By Emoji Apps GmbH

Category: Utilities / Price: \$1.99

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#07 - Geometry Dash

By RobTop Games AB

Category: Games / Price: \$1.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#08 - Heads Up!

By Warner Bros.

Category: Games / Price: \$0.99

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#09 - Afterlight

By Afterlight Collective, Inc

Category: Photo & Video / Price: \$0.99

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#10 – Facetune

By Lightricks Ltd.

Category: Photo & Video / Price: \$3.99

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#01 - GarageBand

By Apple Category: Music / Price: \$4.99 Compatibility: OS X 10 9 or late



#02 – AntiVirus Sentinel Pro

By Calin Popescu Category: Utilities / Price: \$9.99 ompatibility: OS X 10.7 or later, 64-bit processor



#03 – Document Writer

By xiong feng
Category: Business / Price: \$9.99
Compatibility: OS X 10 7 or later



#04 – Logic Pro X

Category: Music / Price: \$199.99 Compatibility: OS X 10.8.4 or later, 64-bit processor



#05 - FaceTime

By Apple Category: Social Networking / Price: \$0.99 Compatibility: OS X 10.6.6 or later



#06 - BetterSnapTool

By Andreas Hegenberg Category: Productivity / Price: \$1.99 Compatibility: OS X 10.6 or later, 64-bit processor



#07 – Disk Doctor

By FIPLAB Ltd Category: Utilities / Price: \$2.99 Compatibility: OS X 10.7.3 or later, 64-bit processor



#08 – Final Cut Pro

By Apple Category: Video / Price: \$299.99 Compatibility: OS X 10.10.4 or later, 64-bit processor



#09 – Duplicate Photos Fixer Pro

By Systweak Software Category: Photography / Price: \$0.99 Compatibility: OS X 10.7 or later



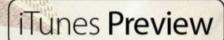
#10 – Fantastical 2 - Calendar and Reminders

By Flexibits Inc. Category: Productivity / Price: \$39.99 Compatibility: OS X 10.10 or later, 64-bit processor



i Unes Review











by Brad Peyton Genre: Action & Adventure Released: 2015

* * * * * * * 269 Ratings

Price: \$19.99



Trailer

Movies TV Shows

Rotten Tomatoes



50%



San Andreas

As a huge, magnitude 9 earthquake and then tsunami engulfs the whole state of California in chaos, helicopter rescue pilot Chief Ray Gaines (Dwayne Johnson) and his former partner Emma (Carla Gugino) rush to San Francisco to save their only daughter, Blake (Alexandra Daddario). It's no easy journey for them - and, just as they hope they have seen the worst, the destruction spreads...

FIVE FACTS:

- 1. The development of this film was first announced in December 2011, when it was titled San Andreas 3-D.
- 2. Nearly two years later, in October 2013, Dwayne Johnson agreed to star in the movie.
- 3. The first trailer for San Andreas was released in December 2014.
- **4.** Welsh actor loan Gruffudd appears in this film as Daniel Riddick, Emma's new boyfriend.
- **5.** Australian pop star Kylie Minogue also appears as Susan Riddick, Daniel's sister.





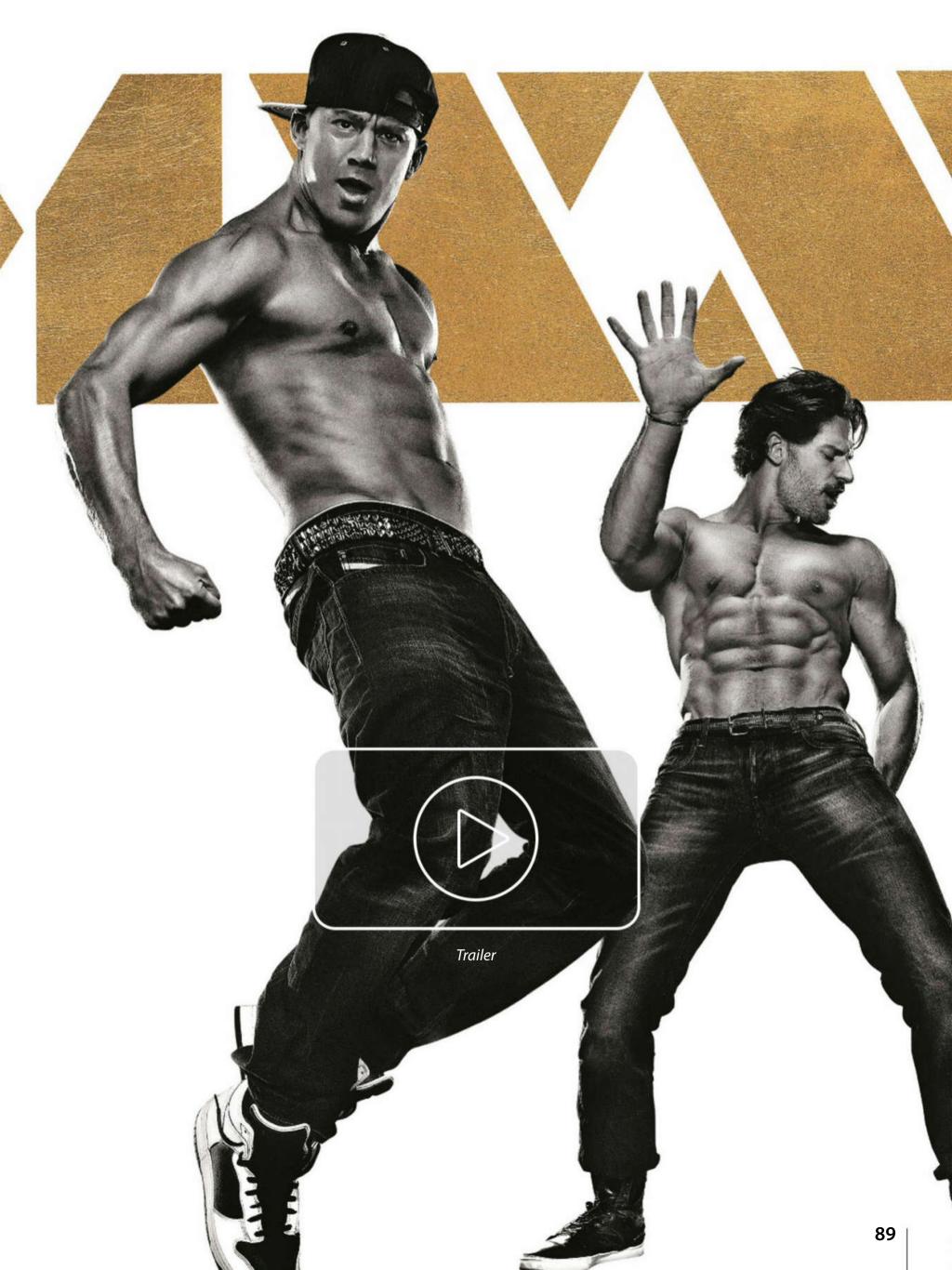
Magic Mike XXL

Three years after the legendary Magic Mike (Channing Tatum) said goodbye to life as a stripper, the rest of the Kings of Tampa have decided to do the same. However, they remain eager for a spectacular final performance, where Mike would rejoin them on stage. They take the road to Myrtle Beach and, as the last show nears, come across surprising ways of letting go of their old lives.

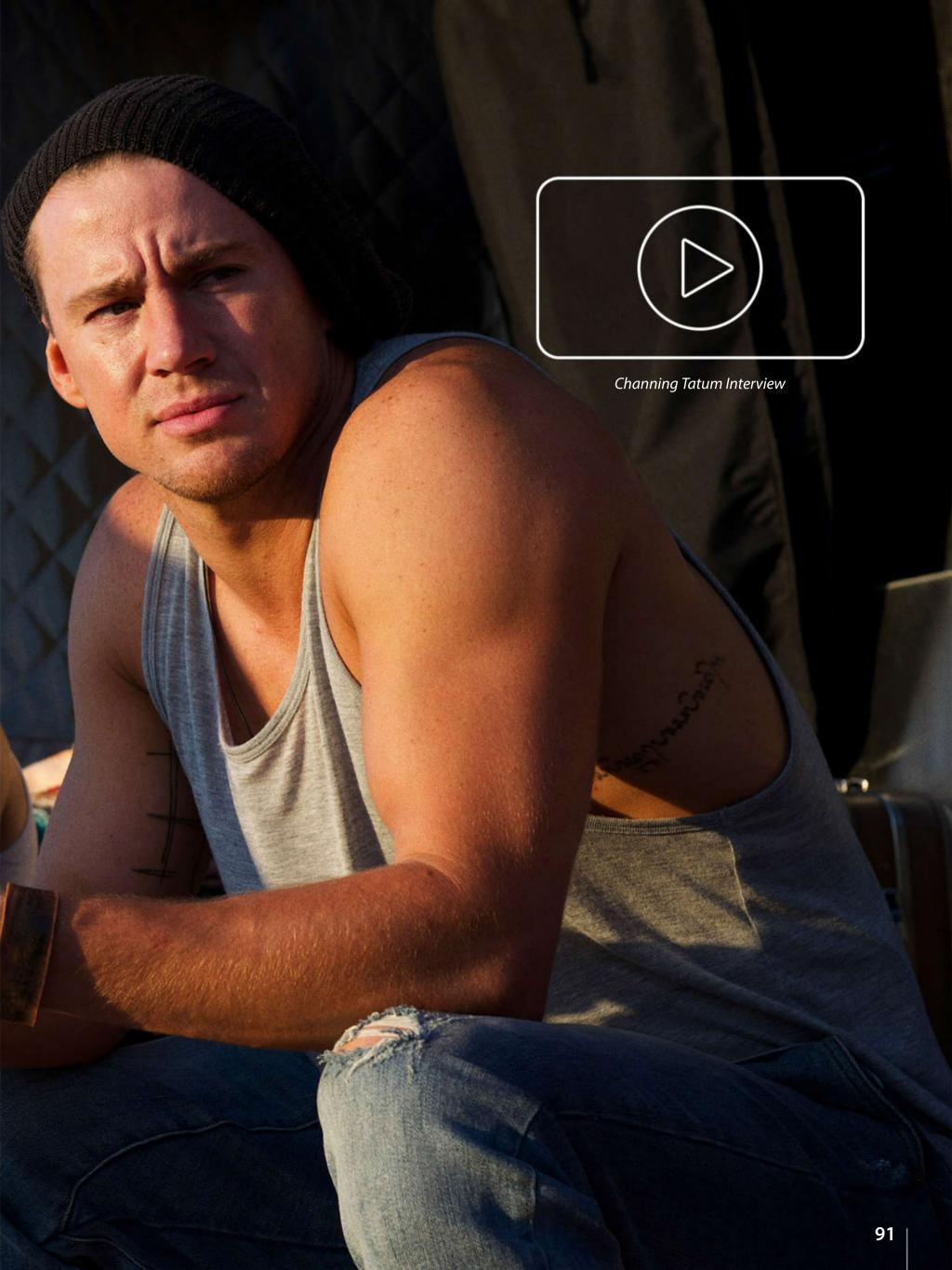
FIVE FACTS:

- 1. This is the sequel to 2012's Magic Mike.
- **2.** The other stars of this movie include Matt Bomer, Kevin Nash and Joe Manganiello.
- 3. Bomer has contributed cover versions of D'Angelo's "Untitled (How Does It Feel)" and Bryan Adams' "Heaven" to the soundtrack.
- **4.** During production, director Gregory Jacobs said that Magic Mike XXL would be "very different" to its predecessor, describing it as a "road trip movie".
- 5. As of September 24, 2015, the film had grossed \$117,813,057 globally.













Music Complete New Order

The British rock band New Order was formed in 1980 by the remaining members of Joy Division following the tragic death of lead vocalist lan Curtis. However, whereas the former band was very much a post-punk outfit, New Order embraced electronica and synthpop to sparkling effect. Music Complete is the band's first album without founding member and original bassist Peter "Hooky" Hook.

FIVE FACTS:

- 1. The band's best-known song, 1983's "Blue Monday", is the best-selling 12-inch single of all time.
- **2.** Music Complete is only the fourth studio album released by New Order since 1993's Republic.
- 3. In their announcement of the new album in June, New Order revealed that "where the group has previously pushed toward electronics or guitars, here the two are in balance."
- **4.** In a positive review, The Guardian calls Music Complete a "fresh, danceable album with intriguing diversions".
- **5.** In our own review of Music Complete on the AppleMagazine website, we describe it as a "return to form that could, at long last, herald a new period of sustained popularity for the band."





dumblonde dumblonde

Aubrey O'Day and Shannon Bex were previously members of the R&B and hip hop girl group Danity Kane. However, that outfit disbanded in 2014 - and, this year, O'Day and Bex formed the synthpop duo dumblonde. Their self-titled debut album has just appeared on iTunes and includes the songs "white lightning", "dreamsicle" and "tender green life".

FIVE FACTS:

- 1. Danity Kane were formed in 2005, on MTV's Making the Band reality television series.
- 2. That band disbanded in 2009, before returning to brief activity from 2013 to 2014.
- 3. After the band's first break up, Shannon Bex brought out a country music EP titled "I'm A Woman".

4. Bex has been married to Ron Basada since 2003.

5. The iTunes release of this album also includes videos for "white lightning", "dreamsicle" and "tender green life".



White Lightning











Genre: Dance Released: Sep 25, 2015 11 Songs Price: \$9.99











APPLE SELLS 13 MILLION NEVV iPHONES IN 3 DAYS

Apple says it sold more than 13 million iPhone 6s and 6s Plus phones in the three days since its iPhone launch, topping last year's early sales mark.

Apple sold 10 million IPhone 6 and 6 Plus models during their first weekend last year. This year's results include sales in China which was included in the initial launch for the first time.

Apple said previously that preorders were so strong that it expected to surpass last year's record.

PiperJaffray analyst Gene Munster said results came in at the high end of his expectations for sales of 12 million to 13 million. He estimates China added about 2 million in sales.









"Today's news suggests the iPhone 6 cycle is off to a good start," he wrote.

The new models have more memory and faster processors, along with a new 12 mega-pixel camera, and starts at \$649. Apple and wireless service providers are also offering leasing and monthly installment plans.

Cupertino, California-based Apple Inc. says the phones will be available in 40 additional countries beginning Oct. 9 including Italy, Mexico, Russia, Spain and Taiwan and 130 countries by the end of the year.

Apple said sales completed by Sept. 26 will be included in Apple's fiscal fourth quarter results, and sales completed on Sunday, Sept. 27 will be included in Apple's first-quarter 2016 results.

Shares slipped \$1.28 to \$113.43 in morning trading Monday.





MODITOUTS SOCIAL MEDIA,
TECH DEVELOPMENT IN
FACEBOOK VISIT

Indian Prime Minister Narendra Modi touted the power of social media and his own goals for developing India's tech economy on Sunday, speaking to a global audience from a town hall meeting at the headquarters of the world's largest social network.

Modi also vowed to improve education for girls and bring more women into decision-making in his country, while responding to a handful of questions during a carefully orchestrated session led by Facebook CEO Mark Zuckerberg.

The strength of social media today is that it can tell governments where they are wrong and can stop them from moving in the wrong direction, Modi said, in remarks translated from Hindi by an interpreter.





We used to have elections every five years and now we can have them every five minutes, added Modi, who is known for using both Facebook and Twitter to communicate with millions of followers.

Sunday's hour-long session came during a whirlwind tour of Silicon Valley that included two days of meetings with the CEOs of Apple, Google and other leading tech companies, along with local political leaders and an estimated 18,000 people who were expected to attend an Indian community reception at a San Jose sports arena.

Modi received a warm welcome from about 1,200 people at the morning session, which was also streamed live on Facebook.

We are software engineers. This is music to our ears, said 23-year-old Ashna Jain, reacting to Modi's comments. Like many young Indian tech workers in the audience, Jain said she liked Modi's goals for increasing Internet connectivity and building a tech economy because she hopes to return home to work in India one day.

Modi in fact struck several notes that many tech entrepreneurs would applaud. He said he's working to reduce government regulation of business and crisscross the country with fiber optic networks.

But he also scored a human note, becoming emotional while describing his impoverished childhood and his mother's efforts to support his family by doing menial work. In India, there are hundreds of thousands of mothers like that, he added.

Modi's visit to California is the first by an Indian head of state since Indira Gandhi came to Los Angeles in 1982, and it's been a rallying event for many of the tens of thousands of Indian immigrants who work in Silicon Valley.

We're pretty hopeful about how the country has progressed under him, said Ankur Sadhoo, a young Facebook engineer who brought his wife to the event.

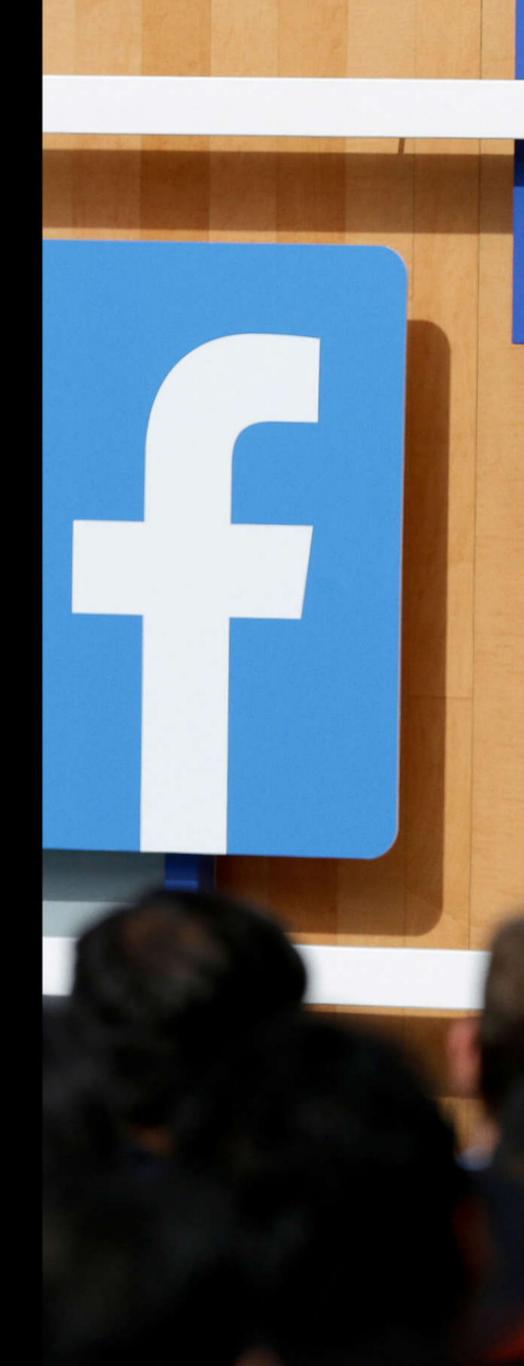
Modi's fans say they admire his ambitions for Digital India, a broad program of technological and economic development, and his promise to end government corruption and inefficiency.

But he has critics Some activists organized protests on Sunday to press the prime minister over creation of a Sikh homeland, along with alleged mistreatment of Muslims and Christians by groups linked to his Hindu nationalist Bharatiya Janata Party.

Modi's schedule also included meetings with Apple Inc. CEO Tim Cook, Tesla Motors Inc. chief Elon Musk and two Indian-Americans who have recently become CEOs of major tech companies Satya Nadella of Microsoft Corp. and Sundar Pichai of Google.

They had plenty to discuss Silicon Valley companies see India as a huge potential market for their own expansion, while Modi wants their help in developing his country's tech industry. U.S. tech interests, however, would like to see Modi trim what they view as bureaucratic and financial restrictions on investment there.

About 300 million Indians use the Internet but another billion don't have access. After meeting with Modi on Sunday, Google's Pichai









announced his company will provide Wi-Fi service to 400 train stations across India, which he said would serve 10 million rail passengers daily.

Facebook has already launched an effort to connect with lower-income Indians through Zuckerberg's Internet.org project, which promotes Internet use in developing countries by offering free access to a package of web apps on mobile phones.

That effort has drawn controversy, however.

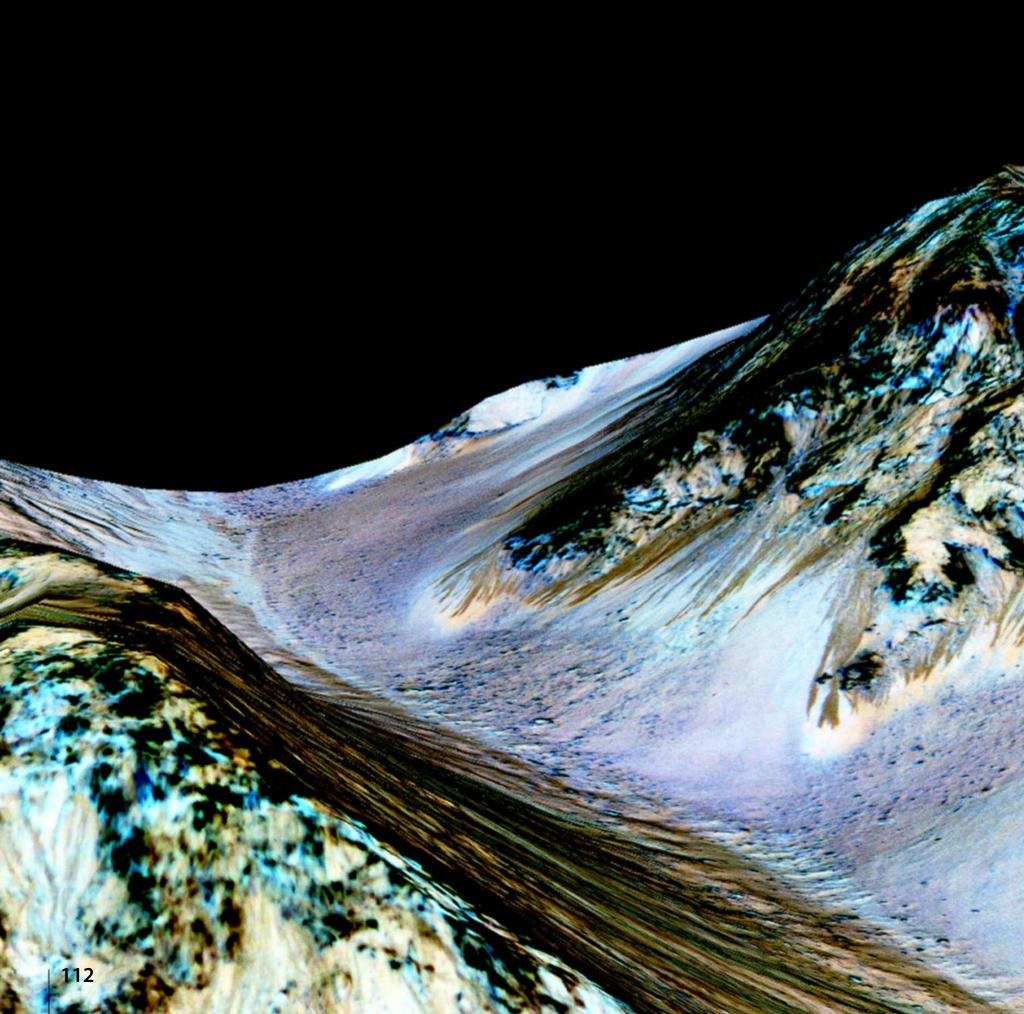
Critics in India said the project favors Facebook and a limited number of partners, while making it more difficult for homegrown entrepreneurs to draw traffic to their own websites.

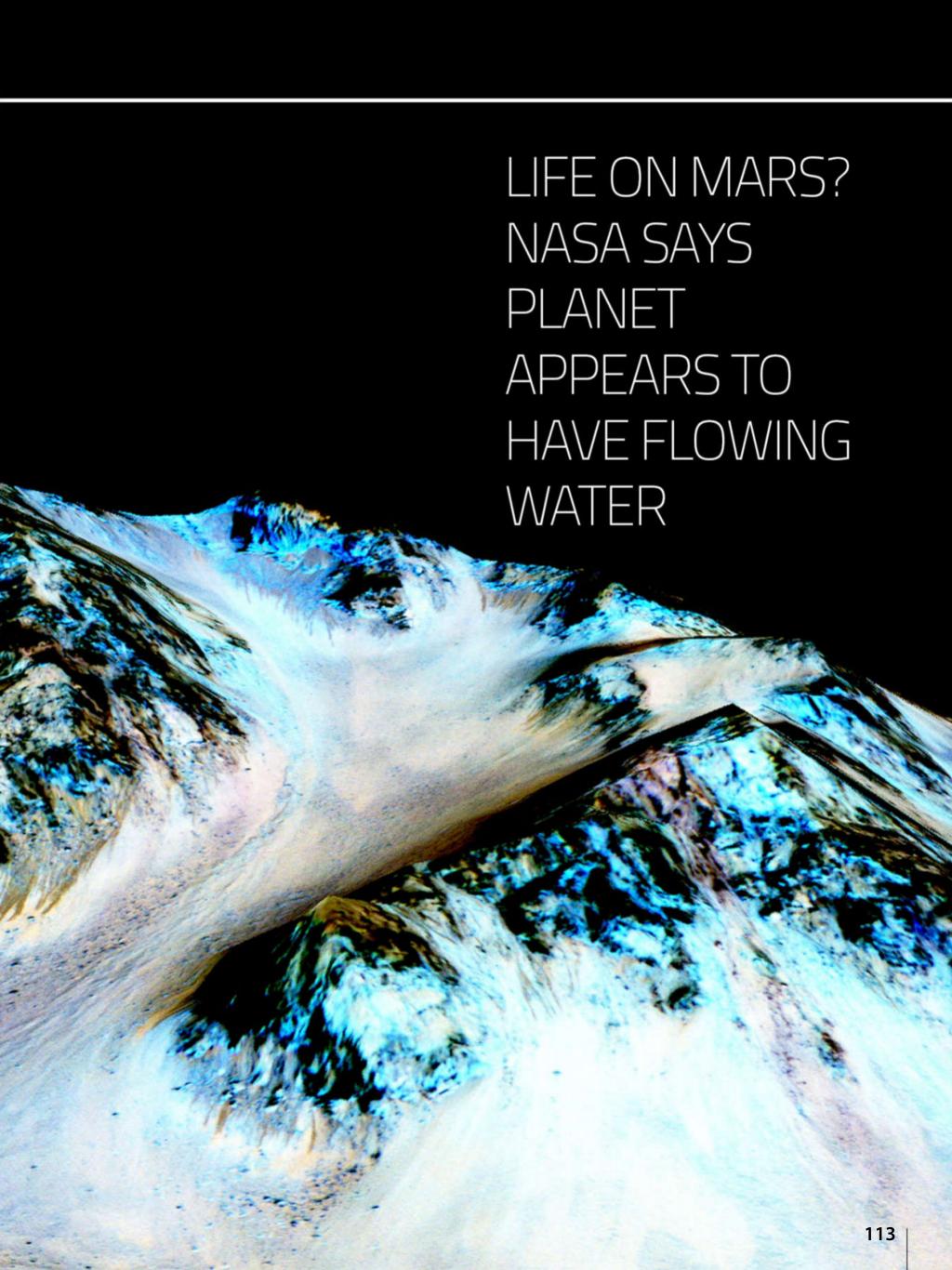
Responding to that criticism, Zuckerberg promised to open the program to more online services. Facebook announced last week that it has launched a new platform for outside developers to contribute apps to the program.

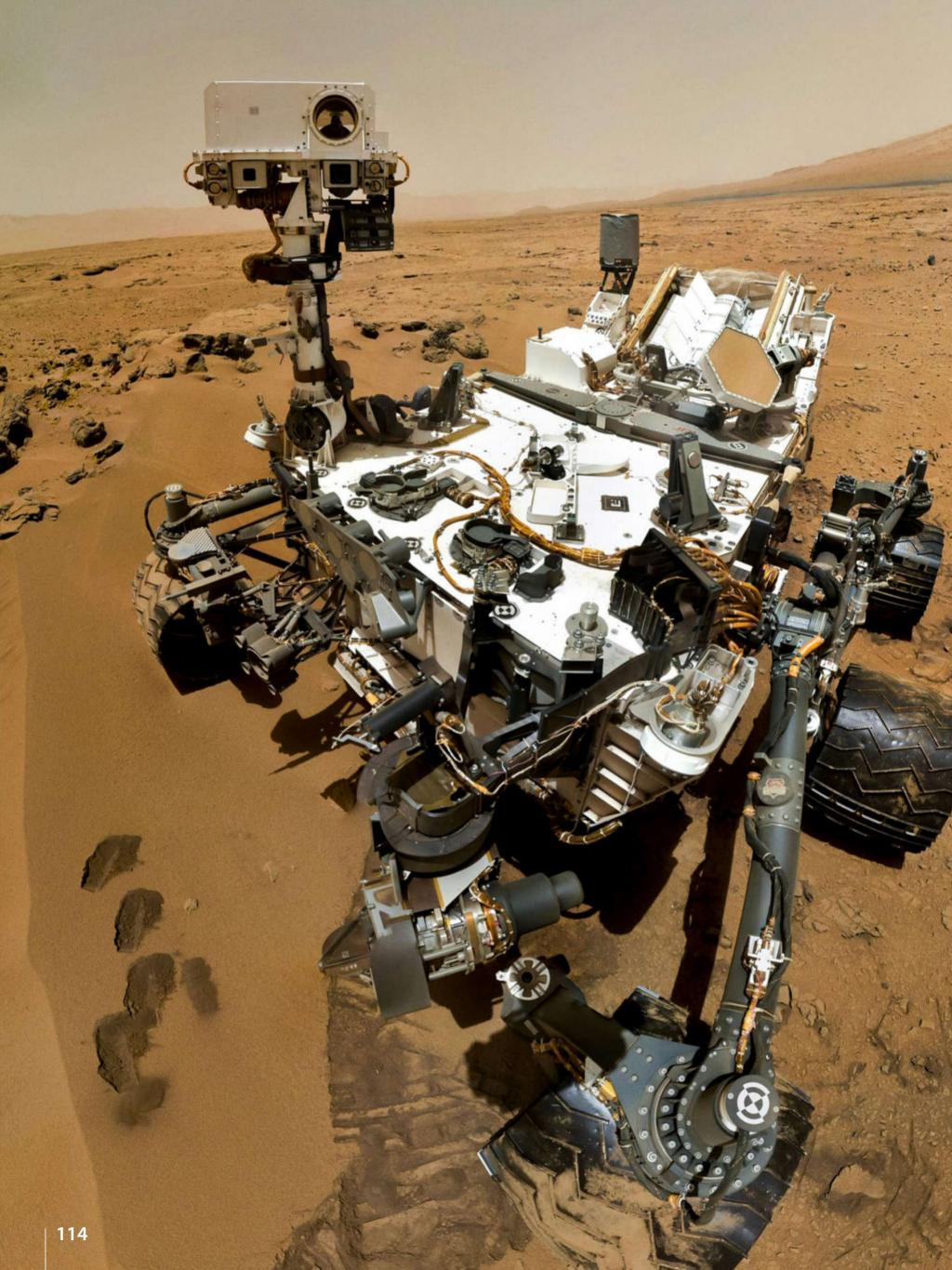
Modi's visit comes less than a week after Chinese President Xi Jinping met with many of the same U.S. tech executives in Seattle. Silicon Valley firms are eager to do more business in both countries, although China's government has thrown up more barriers to U.S. firms.

Modi is scheduled to fly east Monday to meet with President Obama before returning home to India.

SCIENCE









Mars appears to have flowing rivulets of water, at least in the summer, scientists reported Monday in a finding that boosts the odds of life on the red planet.

"Mars is not the dry, arid planet that we thought of in the past," said Jim Green, director of planetary science for NASA.

Scientists in 2008 confirmed the existence of frozen water on Mars. Now instruments aboard NASA's Mars Reconnaissance Orbiter have yielded what researchers said is the strongest evidence yet that water in liquid form trickles down certain Martian slopes.

And because liquid water is essential to life, the finding could have major implications for the possibility of microscopic life forms on Earth's next-door neighbor.

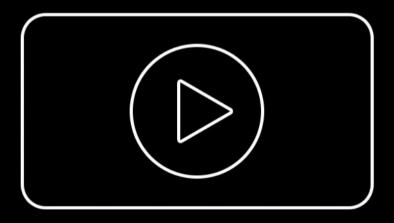
"It suggests that it would be possible for there to be life today on Mars," NASA's science mission chief, John Grunsfeld, said at a Washington news conference.

The rivulets - if that's what they are, since the evidence for their existence is indirect - are about 12 to 15 feet wide and 300 feet or more long, scientists said. They apparently consist of wet soil, not standing water.

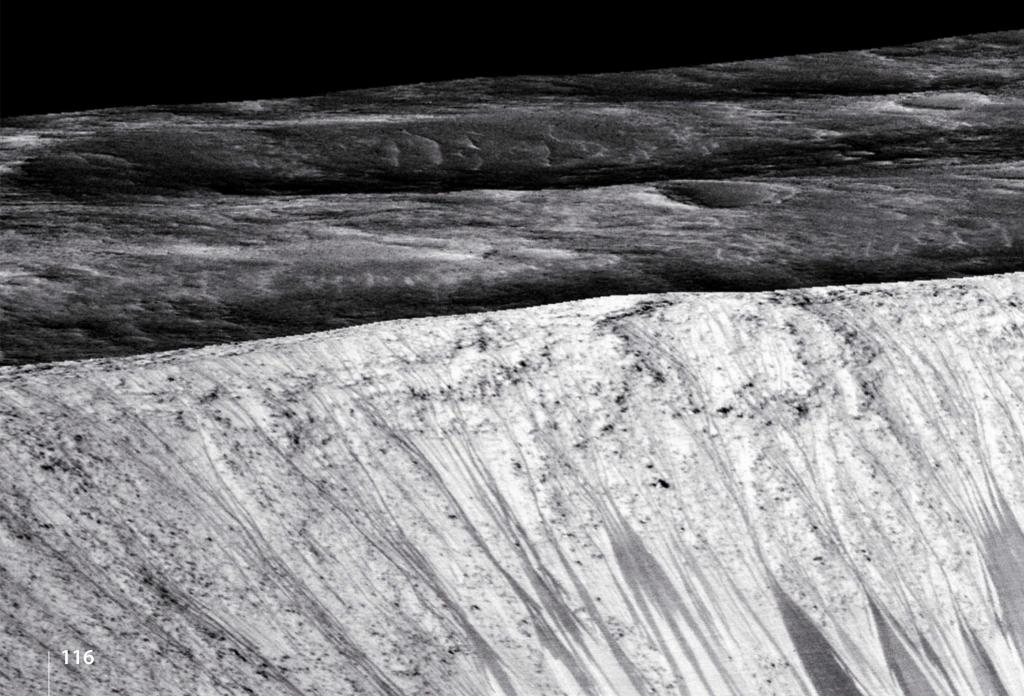
The water is believed to contain certain salts - not ordinary table salt, but magnesium perchlorate, magnesium chlorate and sodium perchlorate.

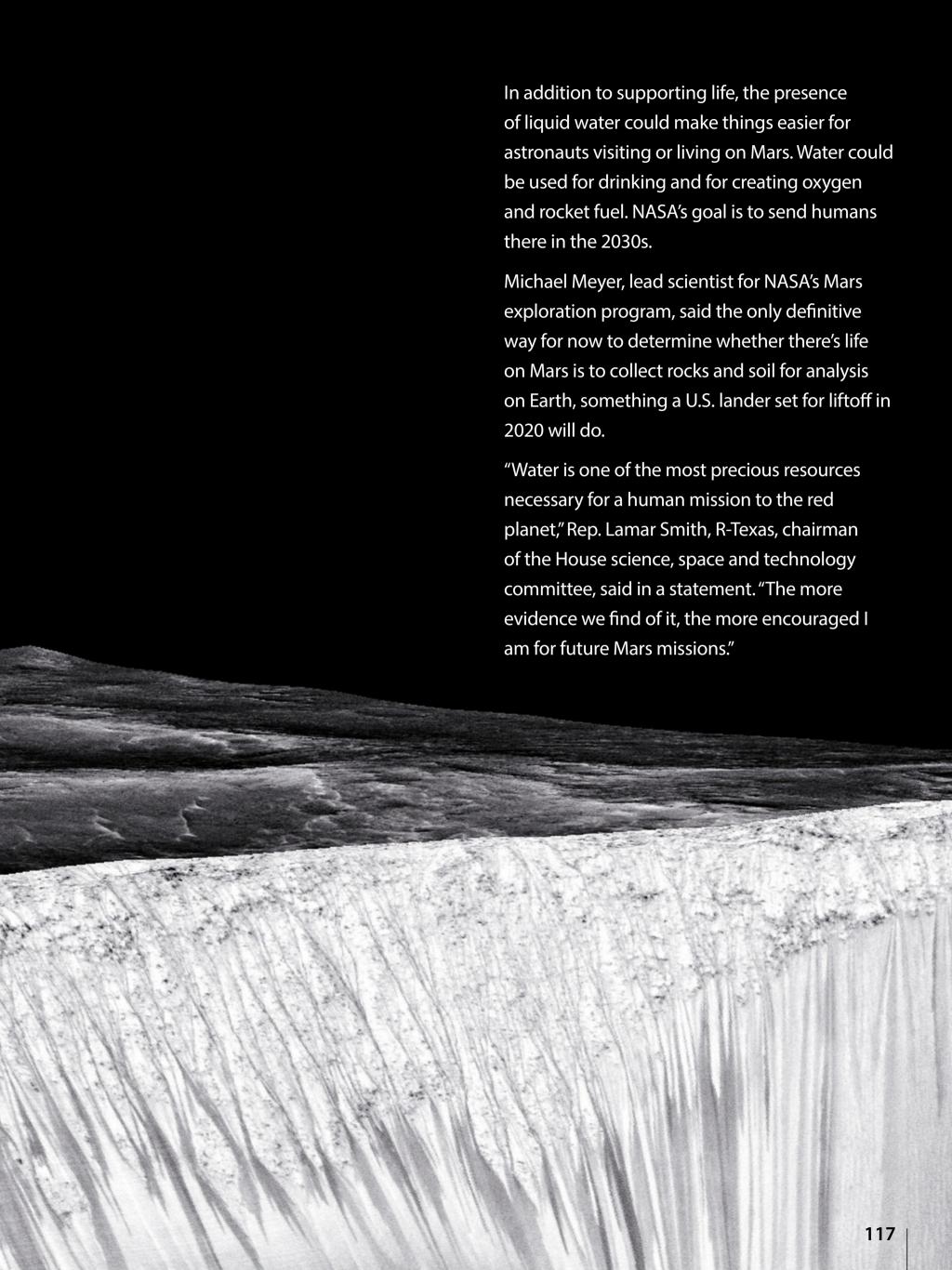
Like road salt used to melt ice and snow on Earth, such compounds can prevent water from freezing at extremely low temperatures.

That would explain how water could exist in liquid form on Mars, which has an average temperature of minus 85 degrees Fahrenheit.



Water Flowing on Present-Day Mars





Alfred McEwen of the University of Arizona at Tucson, a scientist on the project, said he, for one, believes the possibility of life on Mars to be "very high."

The source of the briny water is a mystery.
Scientists said it could be melting ice, an underground aquifer, water vapor from the thin Martian atmosphere, or some combination.

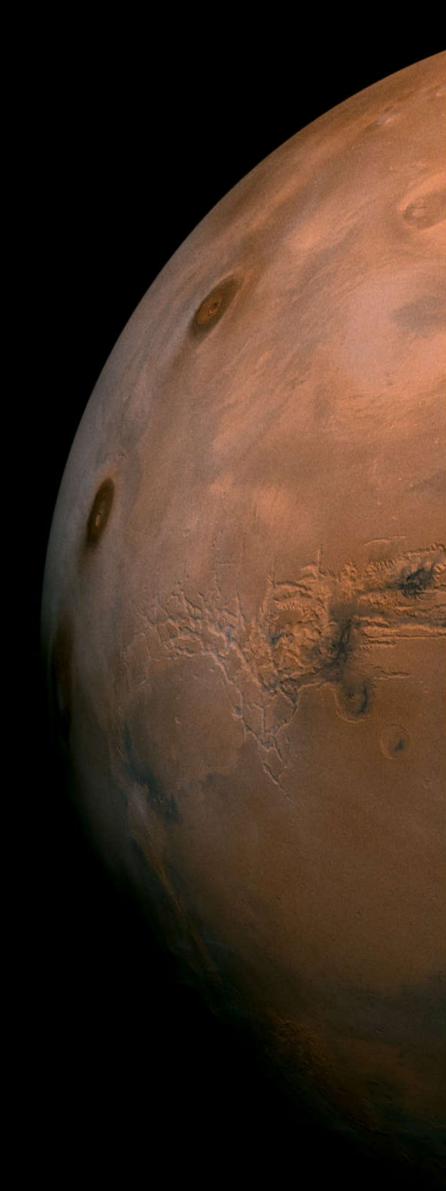
The evidence of flowing water consists largely of dark, narrow streaks on the surface that tend to appear and grow during the warmest Martian months and fade the rest of the year. The streaks are in places where the temperature is as low as 10 below zero.

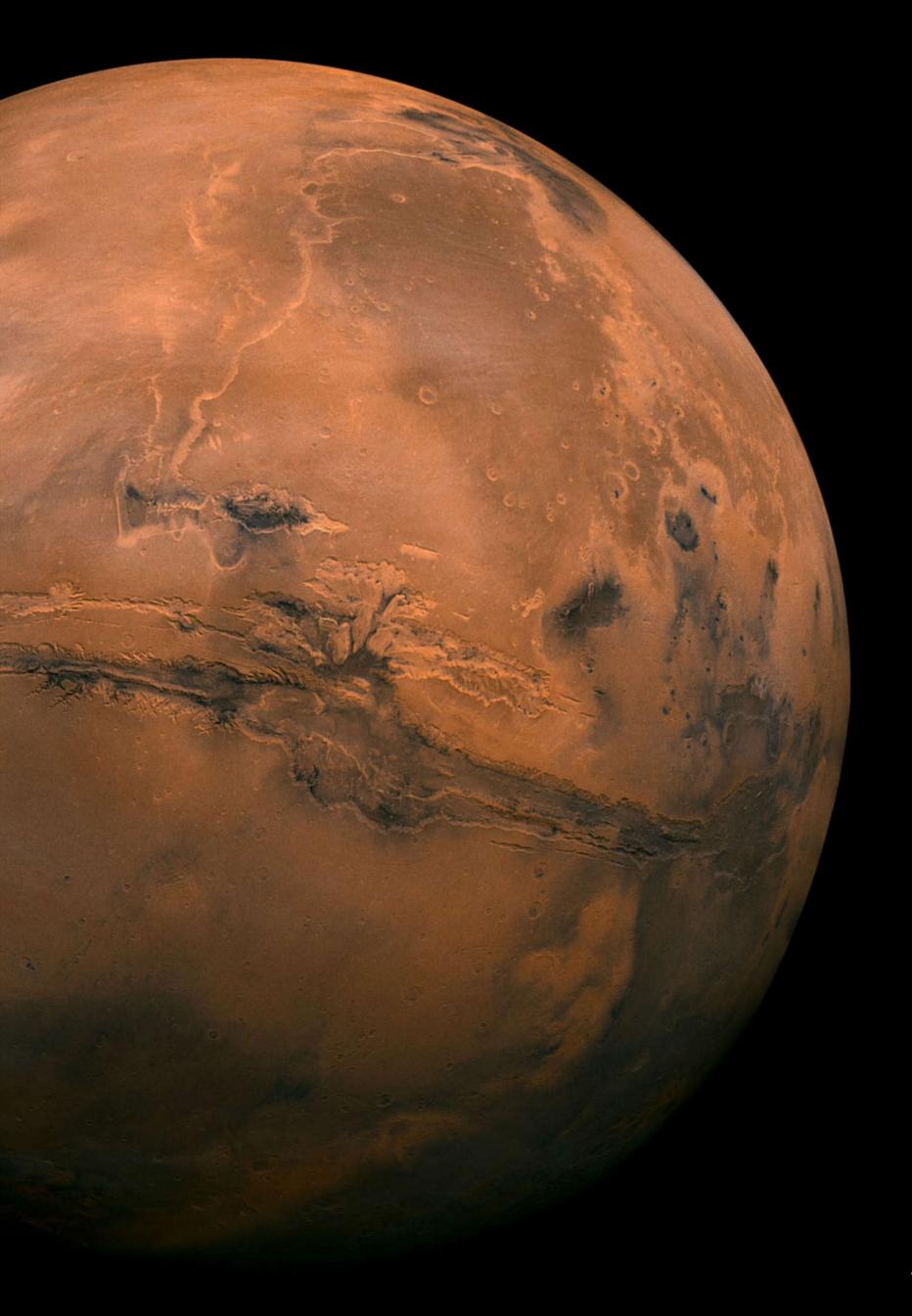
They were spotted by the Mars orbiter's highresolution, telescopic camera, and another on-board instrument detected the chemical signature of salt compounds combined with water.

McEwen said that there appears to be a "significant volume" of water, speculating it could fill many Olympic swimming pools, but that it is spread thin.

Present-day Mars is nothing like ancient Mars. Three billion years ago, our most Earthlike neighbor had a huge ocean, but something radical happened, and exactly what remains a mystery.

The notion of water and life on Mars has been irresistible to earthlings for generations.

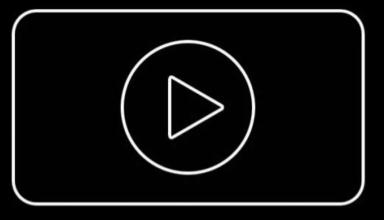




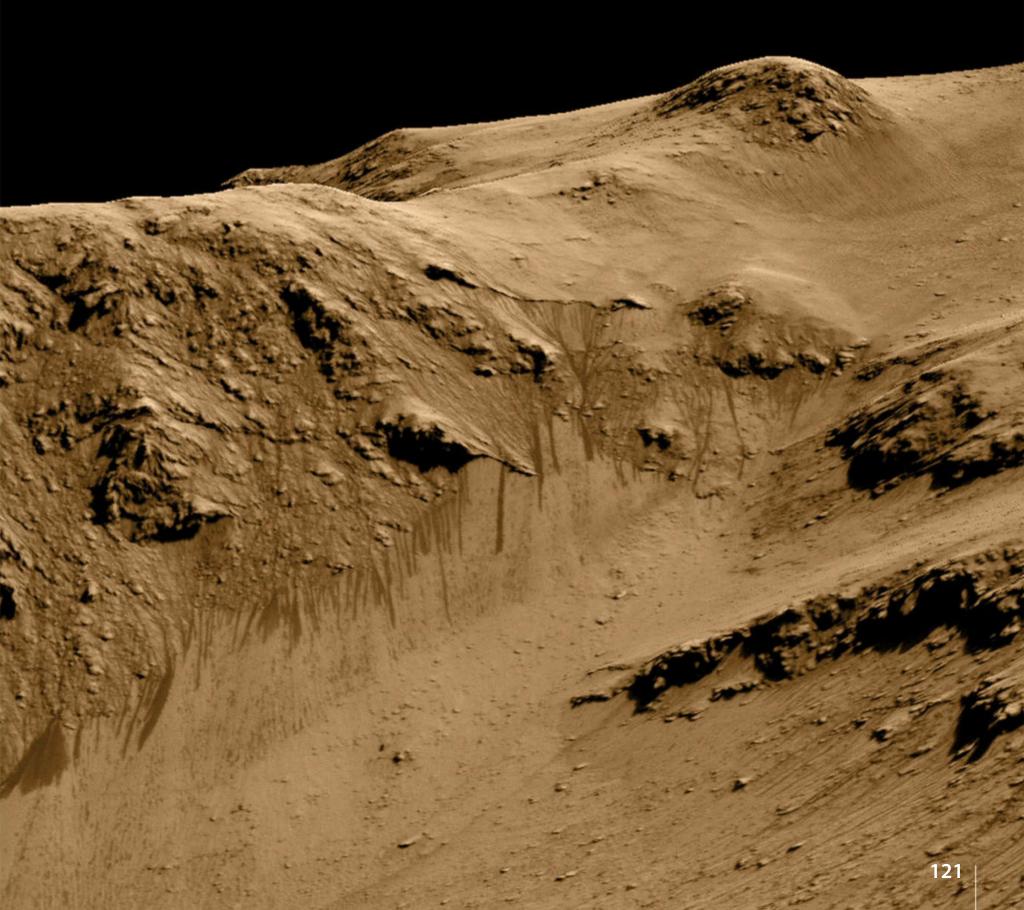
In 1877, Italian astronomer Giovanni Schiaparelli spied what he called "canali" on Mars - Italian for "channels" - but the word was mistranslated as "canals" in English, causing imaginations to run wild. In the early 1900s, amateur astronomer Percival Lowell claimed to have spotted irrigation canals and theorized they were built by Martians.

In 2008, NASA's Phoenix spacecraft landed on Mars and confirmed the long-suspected presence of ice in the soil. The Mars Reconnaissance Orbiter has been circling the planet since 2006.

The latest findings were published in the journal Nature Geoscience. The lead author, Lujendra Ojha, a doctoral candidate at Georgia Institute of Technology, first noticed the streaks on Mars in 2010. Ojha and colleagues speculated at the time that they were seeing flowing water. For NASA, at least, the timing couldn't be better. This Friday, the NASA-approved movie "The Martian" has its premiere. Online: NASA 120



Animation of Site of Seasonal Flows in Hale Crater, Mars



COLLEGES HELP STUDENT STARTUPS NAVIGATE THE LEGAL LANDSCAPE

It seemed like a sure thing. Working on weekends in a cramped fraternity room, four friends at MIT built a computer program that would give websites a new way to make money without online ads.

Not so fast.

New Jersey's attorney general alleged the software had been used to hijack computers. Progress halted while authorities investigated. After more than a year, the inquiry ended and none of the students was charged with a crime. But by then, this past May, another company had already picked up on a similar idea.







The case reminded the Massachusetts Institute of Technology that, on a campus where students are encouraged to tinker and to turn their ideas into businesses, students had largely been left to navigate legal obstacles alone. Now, following a trend at colleges nationwide, MIT is partnering with Boston University's law school to open a free legal clinic for campus entrepreneurs.

"There is this increasing interest among our students to engage in innovation and entrepreneurial activities," said Cynthia Barnhart, the chancellor of MIT and an engineering professor at the school of 11,000. "MIT students needed exactly these kinds of services."

Run by BU law students, the clinic helps get protection for their intellectual property, work with investors and avoid legal pitfalls.



Next year, MIT is opening a second law clinic on Internet law, also in response to Tidbit, the project that was investigated by New Jersey. MIT drew scrutiny when it steered the students elsewhere for legal help, and a nonprofit ultimately represented them.

Jeremy Rubin, an MIT student who led Tidbit, said the controversy had a chilling effect among campus entrepreneurs. But with legal support from the school, he said, students across campus should feel free to pursue creative ideas, not just those who can afford a lawyer.

"For students who are working on really innovative things, they need to be able to show people what they're working on," he said. "Making those resources available will be immensely helpful."

Other colleges have seen similar demand. Along with traditional student-run legal clinics, which serve groups like military veterans and low-income families, more law schools are opening clinics that aim to help startups off the ground, especially those created on campus.

Penn State plans to open a free clinic for entrepreneurs next year. The University of Missouri launched one this semester. Dozens of others have been formed at U.S. colleges in recent years, including at the University of Virginia and Boston's Northeastern University.

"These clinics are growing because there's an unmet need," said James Greif, spokesman for the Association of American Law Schools.

"Patent applications have tripled over the last 20 years, and small businesses make up about half of the private sector in the U.S."





Clinics give law students important work experience, Greif said, while their clients get free advice. Colleges, meanwhile, can get a boost from the success stories.

"Who doesn't want to say that they were responsible in some way for the next Google or Facebook?" he said.

A clinic at the University of Wisconsin's helped students start EatStreet, an online food-delivery service. The University of Michigan helped launch TurtleCell, a phone case with built-in headphones. Northeastern worked with two students to get their energy bar, Coffeebar, sold at 300 stores.

Even without a law degree, students running the clinics can handle most cases. They draft contracts, check the availability of trademarks and work with investors. But there are limits. At Northeastern, for example, students don't submit patent applications.

"The students operate like a small startup law firm. They make decisions as group, they collaborate on their projects," said Susan Montgomery, a law and business professor at Northeastern, who advises the clinic.

Between classes at MIT, sophomore Isaiah Udotong visited the clinic asking how to get nonprofit status for his fledgling startup, which helps African companies expand their online reach. While there, law students also urged him to strike a formal agreement with his co-founders.

"It's almost like a godsend," Udotong said. "We were looking for legal advice and wondering how we were going to make sure everything is legitimate."



















TOP TVSHOWS

THE WITCH'S FAMILIAR

Doctor Who, Season 9

HEAVY IS THE HEAD

SCANDAL, SEASON 5

COBALT

FEAR THE WALKING DEAD, SEASON 1

SLEDGEHAMMER

GREY'S ANATOMY, SEASON 12

IT'S TIME TO MOVE ON

How to Get Away with Murder, Season 2

BRAVE NEW WORLD

HEROES REBORN, SEASON 1

SUMMER LOVIN'

MODERN FAMILY, SEASON 7

THE DEVILS ARE HERE

Empire, Season 2

ODESSA

HEROES REBORN, SEASON 1

THE DARK SWAN

ONCE UPON A TIME, SEASON 5





WHY PHONES BREAK: SCREENS GET STRONGER, YET WE DEMAND MORE

Ask a roomful of people to take out their phones, and you're bound to see several with cracked screens.

Despite engineering breakthroughs, screen breakage has become a part of life, the leading type of phone damage.

In part, we're to blame. We want phones that are bigger, yet thinner, offsetting strides made in strengthening glass. We also want phones to be sleek: A phone that's rugged enough to withstand drops just won't match what we expect smartphones to look and feel like.

"The tradeoff is phones get a lot bigger and bulkier," said Rick Osterloh, president of phone maker Motorola. "Without a really big innovation and technological breakthrough, it's going to be hard to (make a really tough phone) in a size people expect."

That's not to say phones aren't getting stronger.

In fact, given how frequently we use phones throughout the day, juggling them as we commute, run errands and chase after small children, it's amazing screens don't crack even more.





The latest phones from the two leading phone makers - Apple's iPhone 6s and 6s Plus, and Samsung's Galaxy Note 5 and S6 Edge Plus - mix zinc into the aluminum frames for aerospacegrade strength. The frames will absorb more of the shock that would have gone to the glass, not to mention help prevent the phones from bending in pockets.

The displays also use ion-strengthened glass. Samsung uses Corning's Gorilla Glass 4, which gets heated in a process that replaces sodium ions on the surface with potassium ions. Because potassium ions are larger, they press together to create a stronger surface - akin to a layer of armor to protect the interior. Apple turned to Corning for a custom glass that goes through two rounds of ion exchange for greater strength.

Even some budget and mid-range phones, including Motorola's, are now using strengthened glass, though made with older, weaker formulas.



With strengthened glass, you can still pierce the armor with enough pressure, but it's harder than with normal glass.

SquareTrade, which offers protection plans for consumer electronics, said that while phone screens used to crack after one or two drops, the latest iPhones and the Note 5 survived 10 drops each from six feet in tests last weekend, at least when dropped on their corners.

SquareTrade also said the new iPhone screens are more durable than last year's models.

(It didn't test the Note 5's predecessor for comparison.)

But for all three new phones, the screens broke right away when dropped face down on concrete. The stronger glass improves the odds, but the risk isn't zero.

Scott Forester, director of innovations for Gorilla Glass, said Corning has made strides in withstanding the types of surfaces most likely to puncture glass, including asphalt and concrete.





But he said that's offset by glass getting thinner and screens bigger over the years in response to consumer demand.

"It's always this fine balance between practicality and design," Forester said.

SquareTrade said half of its damage claims are for screen cracks. That doesn't include cracked phones people hang onto because they don't want to pay a \$75 deductible.

Melissa Lefas has dropped her iPhone 5s a few times, but its screen survived until the phone slipped out of an open backpack while she was carrying groceries and leaning over to unlock a bike. It landed on a New York sidewalk made of stone - a jagged surface perfect for puncturing glass.

"I heard it and knew it was a goner," she said. "I've seen so many people with cracked screens. I felt it was a matter of time."

Aware of consumers' frustrations with breakage, HTC is offering one free replacement for any damage, including cracks, to its HTC One smartphone within the first year. Unlike standard warranties, accidents are covered.

For other phones, we might simply have to get a case, insurance or both.

Cases offer no guarantees, but they help.
When Ben Wilson's iPhone 5 fell out of a private plane he was co-piloting at 9,300 feet, the case shattered but the phone survived. It helped that the phone landed on a pasture in northern Texas rather than a stone sidewalk.





"It surprised me," Wilson said, talking on that still-functioning phone nearly two weeks later. "I thought it would be in quite a few pieces."

Can more be done? What about ditching glass for something stronger?

Plastic is one candidate, but it's prone to scratching.

Then there's sapphire, a mineral that's just short of diamond in hardness. It's extremely scratch-resistant, but its resistance to cracking is up for debate. It's also tough to manufacture, especially in larger sizes for phone screens. Apple uses sapphire for the smaller displays found on pricier Apple Watch models, as well as for the home button and camera lens cover on iPhones.

The material used isn't the only factor in durability. Apple has received a patent for using internal motors to rotate a phone as it drops so that the glass part doesn't hit the ground. There's no word, though, on when we might see this in iPhones.

It might ultimately come down to priorities.
Yes, people want phones that don't crack, but they also want better cameras and better video playback, not to mention a sleeker design.
Manufacturers have to innovate in all of those areas.

"I give manufacturers a lot of credit for continually striving to make durability a major component of their new designs," said Jessica Hoffman, a spokeswoman for SquareTrade. "However, it just seems they can't keep up with us."

YOUR BRAND HAS BEEN IN SUCH COOD COMPANY



APPLEMAGAZINE.COM

It's all about Apple

The right magazine for the right audience

APPLEMAGAZINE INTERNATIONAL

AppleMagazine Website

Magzter Newsstand

Amazon Newsstand

Scoop Newsstand (Singapore)

Executive Director - ceo@applemagazine.com
Relationship Management - crm@applemagazine.com
Magazine and Website Editor - editor@applemagazine.com
Advertise - ads@applemagazine.com
Social Network - network@applemagazine.com
Promotions - promo@applemagazine.com

EXECUTIVE DIRECTOR

Ivan Castilho Chief Executive Officer / Design Conception

MINDFIELD DIGITAL ART & GRAPHIC DESIGN

Glauco Ribeiro Chief Design Officer / Art & Graphic Design Director

Michael Danglen Art & Graphic Design Produc

Yogh Inc. WordPress Production & Website Support

APPLEMAGAZINE VIDEO CHANNEL

Pedro Miszewski Video Director / Produc

Laurel Hislip

Precise English Inc. Benjamin Kerry (UK) Gavin Lenaghan (UK) Craig Lenaghan (UK) Elena Lusk (US)

COLUMNS

iTUNES REVIEW Benjamin Kerry

FINANCE NEWS Associated Press / Bloomberg

REVISION

Gavin Lenaghan Elena Lusk

SPECIAL THANKS

Rui da Costa Lucas Carvalho Lise Berda Fellipe Giesel James Jarvis **Filipe Siems** Lauren Brown Matthew Coburn Roger Gayalkar Raquel Serrano Robert Fluellen Richard Sawyer

PRIVACY POLICY

TERMS OF USE

SOCIAL NETWORKS



@apple_magazine witter.com/#!/Apple_Magazine

Facebook

Authorized Publisher

AP Associated Press The New Hork Times BBCNEWS Bloomberg Los Angeles Times UPI.com Sün PR Newswire Daily Dress

AppleMagazine © Copyright 2015-2011. All Rights Reserved.

No part of the document may be circulated, quoted, or reproduced for distribution without prior written approval.

Proper Trademark Notice and Attribution iPad™, iPhone™, iPod™, Mac™, iMac™, Macbook™, iOS™, OS X™ are trademarks of Apple Inc., registered in the US and other countries. Please contact support for additional trademark ownership rights information.

The following is a list of Apple's trademarks and service marks http://www.apple.com/legal/ trademark/appletmlist.html.

All other trademarks are the properties of their owners.

AppleMagazine is an independent publication and has not been authorized, sponsored, or otherwise approved by Apple Inc.

Apple Apple